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SELECTION OF SITE FOR REACTOR TEST STATION

HEARINGS

BEFORE THE

JOINT COMMITTEE ON ATOMIC ENERGY
CONGRESS OF THE UNITED STATES

EIGHTY-FIRST CONGRESS

FIRST SESSION

ON

SELECTION OF SITE FOR REACTOR TEST STATION

APRIL 14 AND MAY 10, 1949

Printed for the use of the Joint Committee on Atomic Energy

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SELECTION OF SITE FOR REACTOR TEST STATION

THURSDAY, APRIL 14, 1949

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D. C.

The committee met at 10:30 a. m., pursuant to call, in room 318, Senate Office Building, Senator Brien McMahon, chairman, presiding.

Present: Senator McMahon (chairman); Representative Durham (vice chairman); Senators Johnson of Colorado, Tydings, Hickenlooper, and Knowland; Representatives Price, Kilday, Jackson, Cole, and Hinshaw.

Also present: Senators Murray, Taylor, Miller, Ecton, and Watkins; Representatives Mansfield, D'Ewart, and Sanborn; and William L. Borden, executive director of the joint committee.

The CHAIRMAN. The committee will come to order, please.

This hearing is being held at the request of the congressional delegation from Montana, of which Senator Murray is the senior member. The two Senators and the House delegation joined in asking that this committee give the Montana delegation and the Governor an opportunity to present their reasons why they believe a mistake has been made in the decision of the Atomic Energy Commission to locate a very large atomic development near Pocatello, Idaho.

I might say for the record the joint committee had a very lengthy session with the Commission before the choice was publicly announced. At that time we received from the Commission the standards it had used in selecting the site, and we were told that the choice had narrowed down to three sites.

Subsequently thereto, the Commission, after weighing the factors involved, decided on the Pocatello site.

The committee has discussed this, and it is not the opinion of the committee that we should sit as a trial board, so to speak, to determine whether or not the plant should be in Idaho, or whether it should be in Montana or anywhere else. That is for the Commission, under the law, to decide. The duty of the joint committee is to see to it that that decision is not made capriciously, without reason and without evidence. And it goes without saying that it was not made as a result of undue influence, which is not alleged by anyone concerned with this proceeding.

Those two grounds would be the only reasons, as I see it, that would warrant the joint committee in interfering or attempting to interfere with the choice of the site by the Commission. I state this so the limitations of this hearing may be defined.

The Commission, as I have said, has appeared and has told us of the care they have used, the tests and standards which they have set

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up. It was for them to weigh the evidence as to the sites against those tests and against those standards.

With that statement, we will be glad to hear the first witness. But I will ask if any member of the committee wishes to add anything before we proceed.

Does that cover the subject, gentlemen?

Mr. Loble, will you give your full name?

STATEMENT OF LESTER LOBLE, ATTORNEY, HELENA, MONT.

Mr. LOBLE. My name is Lester Loble. I am an attorney of Helena, Mont., here with the Montana delegation in the interest of Fort Peck and the establishment of the plant there and to present proof within the limitations prescribed by the chairman.

The spokesman for the Montana delegation will be, as I understand, Congressman Mansfield. We are going to present three witnesses. We have other witnesses, but we have confined our presentation to factual matter and have so restricted the material to be presented that it can, we believe, be covered by them. We have others who are available to supply facts and information, but they will not be called unless it is the request of the committee.

After the presentation of the statement of Congressman Mansfield, we shall call upon the Governor of the State of Montana, John W. Bonner, who sits at my right and is here to make a statement on behalf of the State of Montana. Then we shall call upon Gerry Skibbins, industrial engineer for the Montana Chamber of Commerce, who has spent a long time on this matter, Mr. D. P. Brown of the Great Northern Railroad, assistant freight traffic manager, and Mr. Paul Campbell of Fort Peck, or Glasgow, Mont., a hotel man there and a member of the chamber of commerce.

We have other witnesses here, including Mr. N. J. Holter, physicist, who is not a member of the Montana delegation, but has been requested to assist us in the interpretation of technical matters, and is a former senior physicist in charge of wave measurements with the Bikini expedition, who is here with us, but we are not calling any witnesses other than these three in our delegation, and our Governor.

If that covers it, I shall now call upon Congressman Mansfield. It is the wish of the delegation, as I understand it, that he speak on behalf of all of them in addressing the committee.

The CHAIRMAN. Before the Congressman starts, there has been handed to me a memorandum, which is very short and which I would like to put in the record.

(The memorandum is as follows:)

The Atomic Energy Commission hired the firm of Smith, Hinchman & Grylls, Inc., architects and engineers, 243 West Congress Street, Detroit, Mich., to make a survey report on the Fort Peck, Mont., and Pocatello, Idaho, sites in January. The following excerpts were taken from their report to the Commission dated March 26, 1949:

"The general conclusion favoring Pocatello was reached after a thorough consideration of the many factors involved in a selection of site for this project. In respect to all of these factors, except isolation, the area selected is believed to be superior to the Fort Peck site. Pocatello offers advantages as to climate; geology; availability of manpower, land, and materials of construction; transportation; and social-economic factors. Fuel, electric power, water, and con-

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struction costs will be less at Pocatello, and in respect to drainage and security this site offers further advantages."

The factors referred to will be put in the record. I will not go through them all.

(The factors referred to as involved in the selection of the site are as follows:)

Factor	Site		Preferred
	Fort Peck	Pocatello	
Isolation	Very good	Good	Fort Peck.
Security	Good	Very good	Pocatello.
Climate	Poor	Fair	Do.
Geology	Good	Good	Do.
Drainage	Fair	do	Do.
Water supply	Very good	Very good	
Manpower	Poor	Fair	Do.
Materials	Fair	Good	Do.
Social factors	Poor	do	Do.
Land	Very good	Very good	
Costs	Fair	Good	Do.
Transportation	Poor	do	Do.
Electric power	Very good	Very good	Do.
Fuel	Fair	Good	Do.

The total project investment and the annual operating costs are:

	Project investment	Annual operating costs
Fort Peck	$522,750,000	$34,521,000
Pocatello	466,860,000	30,099,000
Difference	55,890,000	4,422,000

In just one factor, namely, that of isolation, Fort Peck was "preferred." In the factors of security, climate, geology, drainage, manpower, materials, social factors, costs, transportation, electric power, and fuel, Pocatello led Fort Peck. And the engineers found the total cost would be $55,890,000 less on an investment basis at Pocatello and the annual operating costs would be less by $4,422,000. The total project investment at Fort Peck was estimated at $522,750,000, and at Pocatello $466,860,000.

Mr. LOBLE. Our testimony, Mr. Chairman, will be largely directed to matters contained in that report, those things that you have read there. Smith, Hichman & Grylls, Inc., is, as I understand it, a private architectural firm that made this examination. That report has been furnished to us.

We might add, in passing, that one of the gentlemen on there, the chief geologist, I believe, is from Idaho, and when he speaks about climate, and so forth, we think we have things here that we can show to refute much that is said in that report.

May I now call upon the Congressman?

The CHAIRMAN. Go ahead.

Mr. LOBLE. Congressman Mansfield?

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STATEMENT OF HON. MIKE MANSFIELD, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MONTANA

Representative MANSFIELD. Mr. Chairman and members of the committee, in connection with what Mr. Loble has just said, I would like to call to the attention of the committee that the first chance I had to see this report put out by this Detroit concern was yesterday evening in Senator Murray's office. At that time I read to the assembled Montanans the letter of transmittal from this firm, signed by a Mr. Grubb, as I recall, to the Atomic Energy Commission. I have not had a chance to go through that report as thoroughly as I would like to, and I just want to call that to the attention of the committee, so that they will understand why I am in ignorance of various parts of it.

I would also like to tell you that the first that I heard about this particular matter was on February 18, when I received a letter from the Governor of the State of Montana, dated February 14. His letter reads as follows:

> DEAR MIKE: I notice in the Great Falls Tribune under date line Washington, February 10, it is proposed to build an atomic fuel plant in the West.
>
> I am wondering if you know anything about it, and if we might have a chance to get the project.
>
> With best regards,
>
> JOHN W. BONNER, *Governor.*

I cite that to indicate a number of things.

First, of course, it was the first indication I had that there was a possibility of anything of this sort happening in Montana. I had not even heard a rumor prior to that time. Secondly, it indicates that the Governor was awake to his responsibilities and, on the basis of an article in a Montana newspaper, immediately contacted me and asked me to see what I could do in behalf of this project.

I got busy. And I might say too, for the record, that every member of the Montana congressional delegation, Senators Murray and Ecton, Congressman D'Ewart, and I, did everything we possibly could and have been doing everything we can in behalf of this project for Montana, because we feel that we have the ideal site in the Fort Peck-Glasgow area. We have plenty of power, and when the additional generators are put in we will have 105,000 kilowatts' capacity. We have all kinds of land. We have people who want this project. And we feel that we have the conditions which will make this project a success.

It is important to our State that we get this development, because while we have been treated very well in the matter of Canyon Ferry, Hungry Horse, and construction on the Missouri River in general, nevertheless we have to recognize the fact that during the war, because of a lack of industry there, we lost population. We were not considered during the war effort, and consequently our people went to the west coast to find employment.

The answer to Montana's development in my opinion—and I have worked on this policy in my 7 years in the Congress—is the development of cheap low-cost hydroelectric power. In my district alone we have one-tenth of the hydroelectric potential in the entire United States. This is a public power project, at Fort Peck; and these gentlemen would not be here if they did not see an opportunity to use this power. It is power obtained from facilities put in at the expense

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of the people. This power was designed to do a number of things, as far as the Missouri River is concerned, and these things are being done, but it was also designed to be developed for plants of this kind.

I submit, gentlemen, that on the basis of the record, we have everything that you could possibly expect for a nuclear reactor plant of this kind. And I hope that it is still not too late to see to it that Montana is given a fair deal in this particular matter, and that we will be able, even at this late date, to get the nuclear reactor plant there. I speak, I know, for the full Montana congressional delegation, and with their wholehearted approval.

That is all, Mr. Chairman, unless the committee has questions.

The CHAIRMAN. Are there any questions, gentlemen?

Representative JACKSON. Mr. Chairman?

The CHAIRMAN. Mr. Jackson.

Representative JACKSON. I would like to say at the outset that my good friend Congressman Mike Mansfield from Montana has been most diligent in this matter, because I know that he has been pursuing me from time to time with a great deal of diligence in behalf of his great State. I would like to ask Congressman Mansfield this question: When did you first hear about the proposed atomic plant being considered in the West, and from what source?

Representative MANSFIELD. Mr. Jackson, as I have indicated in my testimony, the first indication was a letter from the Governor of Montana, who in turn got his information from an article which appeared in the Great Falls Tribune. His letter is dated February 14. I received his letter February 18. And I think I acknowledged it the same day, telling him that I would get busy on this and would do all that I possibly could.

Representative JACKSON. Thank you.

That is all, Mr. Chairman.

Representative COLE. Mr. Chairman?

The CHAIRMAN. Mr. Cole.

Representative COLE. Mr. Mansfield has given a very fine statement here. But I am curious to know what your recommendation to this committee might be, Congressman. What is there that this committee or the Congress can do in this controversy?

Representative MANSFIELD. I do not know, I will say to the gentleman from New York. But in response to a request from Mr. James J. Flaherty, president of the Montana Chamber of Commerce, the Montana delegation requested the chairman of this committee for a hearing, so that all the facts could be known, and so that, if there was any possibility whatsoever that we could still be considered, we could be given the consideration which we think we are entitled to.

Representative COLE. Is it your position, then, that the Commission did not give the Fort Peck situation ample and thorough consideration before it reached its decision?

Representative MANSFIELD. I am quite sure that the Commission through its experts, gave all these proposed areas consideration. I do feel, though, that on the basis of what information I have at my disposal we have just as good a site at Fort Peck as they have at Pocatello. Furthermore, we have the power right there at Fort Peck which can be used, and which at the present time is in part going out of the State. I want to see that power retained in Montana for the

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building up of our State, giving opportunity to our people, and bringing in such projects as this nuclear reactor plant, which will furnish employment and give opportunities to the people in this area.

Representative DURHAM. I am quite sure the gentleman from Montana has been quite diligent in seeking this operation. Does the gentleman know how many sites were in this picture to begin with?

Representative MANSFIELD. Yes, sir. I saw the information yesterday. It may be in that letter which transmitted the report. I think there were 72 sites in the beginning, which were later reduced to 23, and then eventually reduced to 2; although in connection with those 2, Pocatello and Fort Peck, it would be well to state that on the basis of what Mr. Warner, chief engineer of the Atomic Energy Commission, and Mr. Lilienthal told us, there were 2 sites in the immediate vicinity of Pocatello which they considered a little better than ours.

Representative DURHAM. I bring that out because of the fact that there were other locations turned down also throughout the country, quite a number of them.

Representative MANSFIELD. Yes. I might say also, Mr. Chairman, if I may, that a lot of statements have been appearing in the press of Montana, allegations and the like. I have wherever possible taken those statements down, and I have tried to contact the proper authorities and to get answers to all these questions; which I will either put in the record of these hearings, or put in the record on the floor of the House, so that the people of Montana will know just what has been done by their delegation back here in behalf of this particular project.

The CHAIRMAN. Have you got them in such shape that you could put them into this record?

Representative MANSFIELD. Yes, sir.

The CHAIRMAN. I would like to have them, because I have seen several comments in a number of Montana papers that were absolutely without any foundation in fact whatsoever.

Representative MANSFIELD. I will be delighted to put them in the record, Mr. Chairman. And I am delighted also that this is an open and public hearing so that the people will know what is being done, or attempted as to this project.

(The material referred to is as follows:)

STATE OF MONTANA,
OFFICE OF THE GOVERNOR,
Helena, February 14, 1949.

Hon. MIKE MANSFIELD,
Representative from Montana,
House of Representatives, Washington, D. C.:

DEAR MIKE: I notice in the Great Falls Tribune, under date line Washington, February 10, it is proposed to build an atomic fuel plant in the West.

I am wondering if you know anything about it and if we might have a chance to get the project?

With best regards,

JOHN W. BONNER, *Governor.*

FEBRUARY 18, 1949.

Hon. JOHN W. BONNER,
Governor, Helena, Mont.

DEAR JOHN: This will acknowledge receipt of your letter of February 14, which I have read with much interest.

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I will look into the matter of a proposed atomic fuel plant to be constructed in the West and you may be assured that I will do all I can to see that Montana is considered as a site. As soon as I have any information, I will write you.

Must close now, but with best personal wishes, I am,

Sincerely yours,

MIKE MANSFIELD.

UNITED STATES ATOMIC ENERGY COMMISSION,
Washington 25, D. C., March 25, 1949.

Hon. MIKE MANSFIELD,
House Office Building, Washington, D. C.

DEAR CONGRESSMAN MANSFIELD: Recently members of the Atomic Energy Commission and its staff discussed with you considerations that have governed the Commission in its choice of a site for a reactor testing station. This letter supplements those discussions and replies to your letter of February 18, 1949.

Nuclear reactors are of extreme importance to the atomic energy program since improved forms of reactors will be the basic mechanisms for industrial power or, for example, for the propulsion of ships. During the past 2 years scientists and engineers of the Commission have been studying designs for nuclear reactors and conducting laboratory experiments to develop materials that will withstand the radioactivity, heat, and the corrosion encountered in reactor operation. This work includes studies of shielding and the design and operating characteristics of new types of reactors. The Commission has now reached the point where it must erect pilot models for field testing and development.

The testing and development of nuclear reactors under high level operating conditions requires a field station where such new type reactors could be built. Many of the same security, safety, and operating requirements that governed the selection of the Hanford site necessarily apply in the selection of the new field station; that is, it must have large areas, approximately 400,000 acres, of accessible yet isolated land, an adequate water supply and a minimum of valuable agricultural acreage or home sites. Avoidance of more than absolutely necessary displacement of persons from homes or income-producing property has also been considered.. These basic requirements can be met only in the western part of the United States. The Commission staff in collaboration with the Department of Interior and the Corps of Engineers has made a thorough search of the United States for a site having the characteristics necessary for meeting the stringent requirements for such a station.

The two areas considered most desirable in the over-all survey were the Pocatello-Arco, Idaho, region and a region near Fort Peck, Mont.

Since the first of this year, the Commission has employed the engineering firm of Smith, Hinchman and Grylls of Detroit to make a detailed comparative evaluation of these locations.

The Pocatello-Arco area includes two sites, each of about 400,000 acres, one centered around the naval proving ground and the other adjoining to the southwest.

The Commission has concluded that the site centered around the naval proving ground is superior to either the adjoining site or the Fort Peck location. Consequently, the Commission has initiated discussions with the National Military Establishment intended to result in prompt acquisition of the land comprising the naval proving ground.

Sincerely yours,

UNITED STATES ATOMIC ENERGY COMMISSION.
DAVID E. LILIENTHAL, *Chairman.*

UNITED STATES ATOMIC ENERGY COMMISSION

WASHINGTON 25, D. C.

(No. 162. Information for the press for immediate release)

AEC SELECTS IDAHO SITE FOR REACTOR TEST STATION

The United States Atomic Energy Commission today announced selection of an area in Idaho, including the naval proving grounds at Arco, as the best site for

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a new national reactor testing station. Negotiations are under way with the Navy for the transfer of the proving grounds to the Commission.

After surveying a number of sites throughout the United States, the Commission has concluded that the most suitable location for its purpose is the area in the Snake River plains of Idaho including the 173,000-acre Navy proving grounds.

The total area of the new AEC facility will be about 400,000 acres. All but approximately 20,000 acres of the desired area near Arco is Government-owned land. The new reactor testing station will compare in area with the Hanford plutonium production center on the Columbia River in Washington.

The Commission has authorized its staff to negotiate with Navy officials for the transfer and has transmitted to representatives of the National Military Establishment a request for the property, which now is in inactive status. Engineering surveys are nearly complete, but detailed boundaries for the test area have not been fixed. Other surveys are continuing to determine the availability for housing, schools and other community facilities for personnel of the station.

Preliminary studies indicate that 75 to 100 persons reside near the perimeter of the site. The boundaries, however, are not definitely fixed and it is the policy of the Commission to establish the station with the least possible interference with any residents. (March 22, 1949.)

STATEMENT OF CONGRESSMAN MIKE MANSFIELD OF MEETING WITH MR. DAVID LILIENTHAL, CHAIRMAN, ATOMIC ENERGY COMMISSION, ON MARCH 22, 1949

At 11:40 a. m., Tuesday, March 22, 1949, I attended a meeting with Mr. Lilienthal's office in the building occupied by the Atomic Energy Commission. This meeting was attended by Governor Bonner, Senators Murray and Ecton, Congress Mansfield and D'Ewart, Gerald Skibbins, and James Sullivan; and the Atomic Energy Commission was represented by Mr. Lilienthal and Mr. Roger Warner, Chief Engineer of the AEC. Mr. Warner had also met with Senators Murray and Ecton, Mike Mansfield, and Gerald Skibbins on the preceding Tuesday, March 15.

Mr. Lilienthal stated, in response to a question, that the AEC had decided on March 1 that the Pocatello area, including the United States Navy's Arco Proving Grounds, was to be the location of the proposed atomic nuclear reactor plant. When I asked him why the congressional delegation from Montana had not been informed of this, he replied that he wanted to make the announcement but that the Navy had requested him not to do so. I asked him how long they had been working on the proposal of a new plant and he said 11 months. I told him that, in checking my files, the first word that I had about a proposal for a plant of this nature and the possibility of its being located in Montana was February 18, 1949.

I asked Mr. Lilienthal where the power for the proposed Pocatello plant would come from and Mr. Warner answered saying that the private power companies in the Pocatello region would expand, that power was now being furnished to the Arco Proving Grounds of the United States Navy by a private power line going from Butte and Salt Lake and that additional power would come from Anderson Dam in Idaho when completed. There are no plans to get any power from Montana for this Pocatello project except the small amount now going to the Arco Proving Grounds which, it is anticipated, will be continued.

We tried to induce Mr. Lilienthal to change his mind and to reconsider the possibilities of the Fort Peck-Glasgow area. We pointed out the many natural advantages which would accrue to such a location and assured him that the people of Montana and their Representatives in Congress and the State government would back a location for this area all the way. We pointed out that there would be sufficient power from Fort Peck to run the proposed plant.

Mr. Lilienthal informed us that there were two sites at Pocatello which were considered superior to the Fort Peck area. We asked him if these sites were not acquired would he then consider Fort Peck. He stated that they had every expectation of getting the first site they desired.

We left the meeting at 1:20 p. m., and this is my report to you of our conference with Mr. Lilienthal. Needless to say, I am keenly disappointed with the result.

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HOUSE OF REPRESENTATIVES,
Washington, D. C., March 28, 1949.

DEAR FRIEND: Because of the great amount of mail I have received on the proposed atomic energy plant for Montana, I am having Mr. David Lilienthal's letter to me—dated March 25 and just received—mimeographed and sent to all those who have written to me on the subject. This letter will, in many instances, follow up previous enclosures which have already been sent out.

With best personal wishes, I am,

Sincerely yours,

MIKE MANSFIELD.

(Accompanying the foregoing letter was a mimeographed copy of letter from David Lilienthal to Representative Mansfield, dated March 25, 1949, which is already a part of this record, on p. 7 herein.)

UNITED STATES ATOMIC ENERGY COMMISSION,
Washington, D. C., March 29, 1949.

Hon. MIKE MANSFIELD,
House Office Building, Washington, D. C.

DEAR CONGRESSMAN MANSFIELD: At the meeting you attended with the Montana delegation at the Commission offices on March 22, certain questions relative to the AEC power requirements for the proposed reactor test station were discussed.

You will recall it was stated at that time that we plan to obtain the power from the station from generating equipment installed at the station and from the Idaho Power Co. which will be supported by the plants of the Bureau of Reclamation, either existing or under construction in the Snake River Basin of Idaho.

As you know, the Idaho Power Co. purchases some power from existing plants operated by the Bureau of Reclamation and by the Montana Power Co. Both the Idaho Power Co. and the Bureau of Reclamation have new plants and facilities under construction along the Snake River in Idaho which we believe will be adequate to meet our needs projected over the next several years.

I am further advised by my staff that we have not entered into negotiations with the Bonneville Administration for power for the test station. We do not plan to obtain power from the Hungry Horse project or from the Montana Power Co. Furthermore, we do not expect to require special transmission facilities to bring in out-of-State power to the test station.

Very truly yours,

UNITED STATES ATOMIC ENERGY COMMISSION,
DAVID E. LILLIENTHAL, *Chairman.*

HOUSE OF REPRESENTATIVES,
Washington, D. C., March 30, 1949.

Hon. BRIAN MCMAHON,
Chairman, Senate-House Joint Atomic Energy Committee,
United States Senate.

DEAR MR. CHAIRMAN: We have received the following telegram from James J. Flaherty, president of the Montana Chamber of Commerce, Great Falls, Mont.:

"Montana's labor, farmer, professional business and management groups are united in this appeal: We will not stand idly by while this State's water resources and the American people's tax dollars are squandered needlessly by the uneconomic location of the atomic laboratory in the Pocatello, Idaho, area. Our citizens and our representatives have been dealt a bust hand, off the bottom of a cold deck. Democrats and Republicans alike are up on their hind legs asking for another deal. Therefore, on behalf of all the people of Montana, would you assume personal responsibility for carrying this fight through to the finish? We respectfully suggest that you demand a fair hearing 2 weeks hence before the Senate-House Joint Atomic Energy Committee, in advance of their approval of funds for the atomic laboratory project. It would be fitting for Governor John Bonner to appear at this hearing along with technical experts of our choosing. If, by your determined effort, you are able to obtain a hearing of this kind before

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the proper group, the weight of factual evidence in our hands all but guarantees that when the whole story is made clear the Fort Peck site will be chosen. The people of Montana will await your reply through public channels of communication. We are not asking for favors and our citizens are not on their knees. We are standing shoulder to shoulder as self-respecting Montanans who ask that you assume the leadership of this campaign and turn our last ditch stand into a victory.

"JAMES J. FLAHERTY,
"*President, Montana Chamber of Commerce.*"

Mr. Chairman, we are sending Mr. Flaherty the following reply to the above communication:

"Reurtel. As always we will be more than happy to do all we can to see that Montana is still given every possible consideration as the site for the atomic nuclear reactor plant. We are today at your request asking Senator Brian McMahon, chairman of the Senate-House Joint Atomic Energy Committee for a hearing to take place 10 days to 2 weeks hence before the committee as you stated in your telegram, 'in advance of their approval of funds for the atomic laboratory project.' We are requesting at your suggestion that Governor Bonner be allowed to appear at this hearing along with technical experts of your choosing. We would also suggest that if we can arrange this meeting that you appear also. As soon as we hear from Senator McMahon we will let you know. In the meantime, please be assured that every member of the Montana delegation in the House and Senate has been doing everything in his power to help State of Montana receive this project. Regards.

"Senator JAMES E. MURRAY.
"Congressman MIKE MANSFIELD."

Mr. Chairman, we would personally appreciate your letting us know if it would be possible for your committee to schedule such a hearing within the next 2 weeks to hear the Governor of Montana and other individuals on the proposed atomic nuclear reactor plant now scheduled to be constructed in Idaho.

With best personal wishes, we are,

Sincerely yours,

MIKE MANSFIELD, M. C.
JAMES E. MURRAY.
WESLEY A. D'EWART.
ZALES N. ECTON.

APRIL 4, 1949.

Hon. DAVID LILIENTHAL,
Chairman, Atomic Energy Commission,
Washington, D. C.

DEAR MR. LILIENTHAL: Since the meeting of Governor Bonner and the entire Montana congressional delegation with you in your office on March 22, 1949, at which time you informed us that the Atomic Energy Commission had arrived at its decision to locate the proposed atomic nuclear reactor plant in the vicinity of Pocatello, Idaho, various statements have been released in the press which I think should be answered. I am therefore requesting that you answer insofar as you are capable of so doing the following statements:

1. Statement issued by Dr. Francis Thomson, president, Montana School of Mines, and Drs. Perry, Koch, and Nile, of the School of Mines faculty. (See copy of release issued by School of Mines to Associated Press and United Press on March 24, 1949, and newspaper articles on same statement in issues of Billings Gazette and Great Falls Tribune for March 25, 1949—both news articles enclosed.)

2. Statement by James Flaherty, president, Montana Chamber of Commerce, and carried in Billings Gazette on March 23, 1947, and other Montana papers on same date that:

(*a*) "Montana has been sold down the river in the selection of the site for the new national atomic research plant,"

and that—

(*b*) "if a political trade was made it was one of those 50–50 deals—1 horse and 1 rabbit—Montana winning the rabbit."

3. Mr. Gerald Skibbins said, according to the Billings Gazette, under date of March 26, 1949, that: "The final decision rests with the House-Senate Joint Atomic Energy Committee and the Congress, which must appropriate funds."

4. In the Billings Gazette for March 23, 1949, there appears this statement: "Flaherty said, '* * * We feel Montana was not represented at the hearing.

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We feel sure when our Governor returns tomorrow he will give us the facts and will urge the Congress for a rehearing that Montana may present its case fairly'."

5. In the same issue of the Gazette, March 23, 1949, the Glasgow Chamber of Commerce issued a statement which said: "We simply cannot understand why we were encouraged to go ahead, in view of the decision already made."

6. In the same issue of the Gazette, March 23, 1949, the statement issued by the Glasgow Chamber of Commerce stated: "We further believe that misinformation was given the Commission about the Glasgow-Fort Peck site by someone interested in something other than the best location for the atomic reactor station."

7. A story appeared in the United States News under date of April 1 that the latest site at Arco, Idaho, was selected, Montana interests were trying to get the new plant, and "Competing railroads also were active."

I would appreciate you returning the enclosures for my files.

Must close now but hoping to hear from you about these statements which I have called to your attention. With best personal wishes, I am,

Sincerely yours,

MIKE MANSFIELD.

P. S.—Would you also advise me by whose authority did the Commission act in the selection of the site for the plant and when this power was given to the Commission?

APRIL 5, 1949.

Hon. DAVID LILIENTHAL,
Chairman, Atomic Energy Commission, Washington, D. C.

DEAR MR. LILIENTHAL: Since writing my letter to you on yesterday I have some more questions to ask about the proposed atomic laboratory. These questions are based on statements made in the Great Falls Tribune, Great Falls, Mont., under date of March 30, 1949. Will you please give me, as far as you are able, the answers to the six questions listed below?

1. Mr. Skibbins told a Kiwanis group here the proposed Fort Peck site for the laboratory would be more suitable, but the Atomic Energy Commission selected the Idaho location.

2. Arguing for the Fort Peck site, Mr. Skibbins said the 61,000 kilowatts necessary for the laboratory operation would be available immediately. Power at Pocatello would have to be brought in from some other major project, by use of transmission lines which would cost the Government huge sums, Skibbins added.

3. A deep-well water system which would cost about $8,000,000 would have to be built at Pocatello while a small pump could be used to extract water from the Fort Peck reservoir, Mr. Skibbins said.

4. More skilled workers could be supplied by Montana, Mr. Skibbins declared.

5. About 90 percent of the required 400,000 acres of land needed for the laboratory is now owned by the Government at the Fort Peck site and the Glasgow Chamber of Commerce agreed to buy the rest of the needed land for the Government, Mr. Skibbins said.

6. The Navy owns 120,000 acres at Pocatello and the rest of the land would have to be bought from farmers in the area, Mr. Skibbins said. The Navy is not anxious to relinquish its hold on the firing-range land it holds, he added.

I would appreciate your returning the enclosed newspaper clippings with your answers.

Must close now but with best personal wishes, I am,

Sincerely yours,

MIKE MANSFIELD.

(The newspaper clipping referred to in the foregoing communication from Congressman Mansfield to Mr. Lilienthal from the Great Falls Tribune, dated March 30, 1949, is as follows:)

FAIR CONGRESSIONAL HEARING ASKED ON REACTOR STATION

HELENA, March 29.—A Montana Chamber of Commerce division consultant urges "a fair congressional hearing" before money is appropriated to set up an atomic reactor station at Pocatello, Idaho.

G. J. Skibbins, chamber industrial development division consultant, spent a week in Washington, D. C., trying to persuade the Government to locate the

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multi-million-dollar plant at Fort Peck. He represented Gov. John W. Bonner, who also conferred in Washington.

1. Skibbins told a Kiwanis group here the proposed Fort Peck site for the laboratory would be more suitable, but the Atomic Energy Commission selected the Idaho location.

2. Arguing for the Fort Peck site, Skibbins said the 61,000 kilowatts necessary for the laboratory operation would be available immediately. Power at Pocatello would have to be brought in from some other major project, by use of transmission lines which would cost the Government huge sums, Skibbins added.

3. A deep-well water system which would cost about $8,000,000 would have to be built at Pocatello while a small pump could be used to extract water from the Fort Peck Reservoir, Skibbins said.

4. More skilled workers could be supplied by Montana, Skibbins declared.

5. About 90 percent of the required 400,000 acres of land needed for the laboratory is now owned by the Government at the Fort Peck site and the Glasgow Chamber of Commerce agreed to buy the rest of the needed land for the Government, Skibbins said.

6. The Navy owns 120,000 acres at Pocatello and the rest of the land would have to be bought from farmers in the area, Skibbins said. The Navy is not anxious to relinquish its hold on the firing-range land it holds, he added.

UNITED STATES ATOMIC ENERGY COMMISSION,
Washington 25, D. C., April 12, 1949.

Hon. MIKE MANSFIELD,
House Office Building, Washington 25, D. C.

DEAR CONGRESSMAN MANSFIELD: Your letter of April 4, forwarding a series of statements released in the press, raises a number of questions about the Commission's decision to acquire a reactor site at Pocatello, Idaho. Since these statements show some misunderstanding, both of the purpose of the new site and the meaning of the decision, we wish to outline here the main steps taken by the Commission since April 1948, when it was first recognized that a testing station for experimental reactors was necessary.

The requirements for such a station demanded an isolated area of at least 400,000 acres to minimize potential hazards. At the same time it was desirable that the site be near enough to surrounding communities to make possible accommodations of personnel at this project site. Other requirements included access to a steady flow of water and to an adequate source of power.

In cooperation with representatives of other branches of the Government, skilled in this type of work, the Commission staff considered over 70 areas that might meet these requirements. By process of elimination, with more detailed examination at each stage, this number was reduced from 70 to 23, and then from 7 to 2—the Fort Peck, Mont., site and the area at Pocatello, Idaho.

The Commission employed the engineering firm of Smith, Hinchman & Grylls, Inc., to make a comparative evaluation of these two sites. In this final analysis before selection, the Commission staff and the engineering firm employed specialists in geology, hydrology, meteorology, and sociology and refined the requirements to include new criteria for isolation, security, climate, geology, nature of drainage and water supply, sources of manpower, availability of materials, town and community development, construction costs, types of transportation available, availability of electric power, and fuel sources. After the Commission had reviewed the findings of the firm of Smith, Hinchman & Grylls and had considered carefully the data that dealt with problems of health, physical protection, and drainage, in the light of its over-all requirements, it authorized its staff to begin discussions for the acquisition of the area near Pocatello which includes the naval proving grounds. These discussions are now under way.

Because of the misinterpretations that have been made of the announcement by the Commission that it had selected this site, the meaning of the decision should be made clear. This decision was, first, a finding that the Pocatello site was the preferred site and, second, a recommendation that negotiations to obtain the naval proving ground should be opened with the Navy Department. At the time of the decision, it was by no means certain that the Department would or could surrender the area that it was using as a proving ground. The public announcement of the Commission made clear that while the Pocatello site was to be preferred, negotiations for its acquisition were still under way.

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This general statement on the background of the Commission's decision is a preliminary to answers to the specific questions raised by the statements in the body of your letter. We answer, first, however, your postscript in which you ask by what authority the Commission acted in the selection of the site and when the authority was given it. The authority of the Commission to acquire land is based on the provisions of the Atomic Energy Act of 1946, particularly section 12 (a) (7) of the act, authorizing the acquisition of property. Its authority is further based on the language of its basic appropriation act for 1949, authorizing the purchase of land and interests in land.

In the following paragraphs, we comment on the seven statements you include in your letter.

1. Dr. Thomson suggests, in a reported statement, that the Missouri River would appear to be just as suitable to receive radioactive wastes as the Snake River. The Commission proposes to isolate, reduce, and store the radioactive wastes under inventory and, therefore, will not utilize a river in its waste disposal. In the remote possibility of accident, the porous soils of the Pocatello area offer better protection than the more impervious soils of Fort Peck, Mont. Considerations of such a possibility indicated that areas such as the one near Fort Peck, Mont., which consists of moderately impervious soils and is subject to rapid run-offs, are not so desirable as areas such as those northwest of Pocatello, which consists of porous soils with no surface drainage to the Snake River. It has been estimated by geology and hydrology specialists that radioactive material deposited on the Snake River plains near Arco would require more than 100 years to percolate downward 200 feet or more to the water table and pass through it to the Snake River. During this interval, a great deal of the material would be absorbed by the soils, diluted by the underground water flow, or lose its potency by radioactive decay.

2. James Flaherty, president of the Montana Chamber of Commerce, declared that the State of Montana had been "sold down the river" in the choice of the site. We have already pointed out that the survey was impartial, that it was made by independent agencies, as well as by the Commission, and that the decision was reached only after exhaustive analysis.

3. Mr. Gerald Skibbins was quoted as stating that the final decision rested with the Joint Committee on Atomic Energy and the Appropriations Committees of the Congress. It is, of course, true that Congress must appropriate the money needed for acquisition and development of the testing station. As stated above, however, the Commission has been granted authority by the Congress to acquire land as provided in the Atomic Energy Act of 1946 and in its appropriation for 1949. In this connection, a press release from the Joint Committee on Atomic Energy, dated April 5, reported Senator McMahon, chairman of the committee, as stating that "The joint committee does not believe it to be within its province to choose the site but only to ascertain whether or not due care has been used by the Atomic Energy Commission in making the site selection."

4. Mr. Flaherty was quoted in the Billings Gazette of March 23, 1949, as stating that Montana was not represented at "the hearing." Mr. Flaherty, presumably, refers to a meeting between the Commission and the Joint Committee on Atomic Energy. This meeting was called at the request of the joint committee. It was an executive session at which the Atomic Energy Commission informed the joint committee of the selection of a reactor site, in keeping with the provisions of the Atomic Energy Act that the Commission shall keep the joint committee fully and currently informed with respect to the Commission's activities.

5. In the same issue of the Gazette is the statement that "We simply cannot understand why we were encouraged to go ahead, in view of the decision already made." We have already indicated above the background and the nature of the Commission's decision. It was a finding that the qualifications of the Pocatello site best fulfilled the requirements for a test station, and a recommendation that discussions be initiated with the Navy Department directed toward its acquisition. Between the time of the decision and the date of the public announcement, negotiations with the Navy were started. The Montana congressional delegation met with representatives of the Commission and was notified that the Commission had selected a site in Idaho that met its requirements, and that negotiations to acquire it had commenced. Although the Commission will make every effort to obtain the Idaho site, it is still not entirely clear that this site will in fact be released to the Commission.

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6. A statement in the same issue of the Gazette declares that the Commission was given misinformation about the Fort Peck site by "someone interested in something other than the best location" for the atomic reactor site. The impartial, detailed, and professional nature of the surveys conducted by private and Government agencies best qualified for this work has been indicated above.

7. The issue of the United States News of April 1 is quoted to the effect that in this site selection "competing railroads also were active." We know of no activity on the part of "competing railroads" that had any bearing on the choice of the site by the Commission. Without further explanation than is given in this article, the meaning of this statement is not sufficiently clear to make additional comment possible.

We will comment on the further statements forwarded in your letter of April 5 as soon as possible.

Sincerely yours,

UNITED STATES ATOMIC ENERGY COMMISSION,
DAVID E. LILIENTHAL, *Chairman.*

UNITED STATES ATOMIC ENERGY COMMISSION,
Washington, April 13, 1949.

Hon. MIKE MANSFIELD,
House Office Building, Washington 25, D. C.

DEAR CONGRESSMAN MANSFIELD: This is in reply to your letter of April 5 forwarding questions based on statements made in the Great Falls Tribune, Great Falls, Mont., dated March 30, 1949. Our comments on these statements should be considered in relation to the material included in our previous letter to you dated April 12.

1. Mr. Skibbins was reported to have told a Kiwanis group that Fort Peck, Mont., site for the laboratory was more suitable, but that the Commission selected the Idaho location.

To the extent that this is a representation of the Commission's judgment rather than that of Mr. Skibbins, this statement is incorrect. After an examination of detailed surveys and analyses it was the judgment of the Commission that the Pocatello, Idaho, location was better suited to the Commission's needs than the Montana site.

2. Mr. Skibbins was reported to have stated that: "The 61,000 kilowatts necessary for the laboratory operation would be available immediately. Power at Pocatello would have to be brought in from some other major project, by use of transmission lines which would cost the Government huge sums."

According to the present plans it is estimated that the power load for the reactor testing station, including requirements for processing, construction camp, and permanent housing, will be in the order of about 70,000 kilowatts. During the early years the total requirement is nominal. It increases at such a slow rate that by 1953 it is now estimated that not more than 20,000 kilowatts will be needed for all purposes.

In considering the qualifications for Fort Peck the Department of Interior indicated that our requirements could be satisfied during the next 5 years without additional generating capacity. The Department also indicated that power could be supplied from western Montana or by additional capacity installed at the Fort Peck Dam.

We are informed that enough power is presently available for the Pocatello site to handle the requirements during the preliminary construction phase. A transmission line is under construction along the Snake River which will hook up the many generating facilities operated by Idaho Power Co. It is contemplated that the capacity thus generated and distributed will adequately serve the reactor testing station after 1950. Thus as we stated in our letter of March 29, power for this project could be supplied from within the State of Idaho.

It is not planned to install any extensive transmission line other than what is required to obtain power from the new line along the Snake River, which will run about 25 miles in length.

In connection with the cost of power at the two sites, the Department of Interior is proposing a uniform rate for power in the Missouri River Valley and in the Northwest power pool, and according to this proposal the cost of generating and distributing power from Fort Peck will be about 5.5 mills pre kilowatt-hour. Our surveys show that in the Upper Snake River where power generation plants are larger and less costly, transmission lines are shorter. The costs there are

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expected to run at about 3.5 mills per kilowatt-hour. Assuming a consumption of 400,000,000 kilowatt-hours per year, the total annual cost at Fort Peck amounts to $2,200,000 and at Pocatello amounts to $1,400,000.

3. Mr. Skibbins is reported to have said that: "A deep-well water system which would cost about $8,000,000 would have to be built at Pocatello while a small pump could be used to extract water from the Fort Peck reservoir."

Present estimates of the cost of a system for obtaining and distributing water at the Fort Peck and Pocatello sites, which were made by Smith, Hinchman & Grylls, indicated that approximately $10,000,000 would be required at either site. Furthermore, we were informed by the Bureau of Reclamation that there might be an operating charge for the surface water impounded behind the Fort Peck Dam.

4. Mr. Skibbins is reported to have declared that more skilled workers could be supplied at the Montana site than at the Idaho site.

The surveys conducted for the Commission by Smith, Hinchman & Grylls indicated that in 1948 the construction workers within a 200-mile radius at the Montana site numbered about 25 percent of those in an equal area at the Idaho site, although there was a shortage at each site.

5. Mr. Skibbins further declared that 90 percent of the required 400,000 acres of land at Fort Peck is now owned by the Government and that the Glasgow Chamber of Commerce agreed to buy the rest of the Government. This estimate of that proportion of Government land at Fort Peck, cited by Mr. Skibbins, is the same as that presented by the surveys of the Commision.

6. Mr. Skibbins stated that the Navy owns 120,000 acres at Pocatello and that the rest (280,000 acres) would have to be bought from the farmers in the area. He further stated that the Navy is not anxious to relinquish its hold on the firing range land it now holds.

The proportion of Government-owned and non-Government-owned lands at Pocatello as stated by Mr. Skibbins is incorrect. We are advised that the Federal Government presently holds about 93 percent of the land at the Pocatello site. About 4 percent is privately owned. The remainder is State property. Negotiations with the Navy for the transfer of this land are in progress.

In conclusion, we would like to refer again to the detailed, impartial, and professional nature of the surveys which were conducted in connection with the choice of a site for the reactor testing station. The sole interest of the Commission was to obtain the site best suited to the requirements of its program.

Sincerely yours,

UNITED STATES ATOMIC ENERGY COMMISSION,
DAVID E. LILIENTHAL, *Chairman.*

The CHAIRMAN. Are there any more questions?

Senator Tydings?

Senator TYDINGS. I would like to ask if all of the press in Montana support the point of view which you have expressed.

Representative MANSFIELD. Yes, sir.

Senator MURRAY. Mr. Chairman, I wish to add that I am in full accord with everything that Congressman Mansfield has just stated. We were very active as soon as we learned about this matter, and we had several conferences with the Atomic Energy Commission in an effort to understand the situation and present to the Commission some facts that we thought they might not have given due consideration to in determining the location of this site. I still feel as Congressman Mansfield does, that the site in Montana would be the more favorable site to be selected for this purpose. It is an isolated tract, and I think that we have all of the conditions there which are necessary for operation of this plant in Montana with full safety and security.

Representative PRICE. Mr. Chairman?

The CHAIRMAN. Mr. Price.

Representative PRICE. As to the summary which the chairman placed in the record at the outset of the hearing, in the comparison of the factors on electric power both Fort Peck and Pocatello are rated the same.

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Do you know what the source of power at Fort Peck-Glasgow is?

Representative MANSFIELD. It is the Fort Peck project.

I will say to the gentleman from Illinois that that project, which was built during the depression days, generates at the present time, I believe, somewhere around 70,000 kilowatts, but it will, with an additional generator, be able to generate in excess of 100,000 kilowatts of power. It is my understanding that the most power which this new site would need would be in the vicinity of 70,000 kilowatts.

It is my further understanding that insofar as the Pocatello site is concerned, they would very likely in the beginning have to use a few Diesels, and Idaho Power & Light will have to expand its facilities. Furthermore, they are anticipating power from the Anderson Ranch Dam in southwest Idaho, when that is completed.

Representative PRICE. That is all I have, Mr. Chairman.

Senator HICKENLOOPER. Mr. Chairman?

The CHAIRMAN. Senator Hickenlooper.

Senator HICKENLOOPER. Mr. Mansfield, you say that you have not had an opportunity to go through the report of Smith, Hinchman & Grylls, Inc.

Representative MANSFIELD. Yes, sir. I saw it last night for the first time, and I just had a chance to glance over a very few pages, and was not able to go into it in any detail whatsoever.

Senator HICKENLOOPER. Have any representatives of yours had an opportunity to go through that report in any detail?

Representative MANSFIELD. It is my impression that Mr. Skibbins, consultant to the Montana Chamber of Commerce, requested Senator Murray to try and get hold of that report, so that he could have a chance to study it and answer any arguments which he thought were not correct.

Senator HICKENLOOPER. I make that suggestion because if there are facts in the record which would dispute this selection of site, I think they would be pertinent. With the kindliest feeling, I can understand your zeal for acquisition of utilities in your own State, but I just wanted to submit to you that State pride in a location for a project would hardly be sufficient to overturn scientific investigation and finding. I do not mean to say that you do not have more than that, but I am just wondering if your delegation is prepared to call attention to findings which you dispute, backed up by facts which would indicate that the Fort Peck site is in fact a better site.

In other words, I think you probably understand that this committee, whatever lack of authority you may have in determining these things, still would be interested in the best over-all site for this project.

Representative MANSFIELD. May I say to the gentleman from Iowa, who always has had the kindliest feelings toward me personally, which, I want to assure him, are reciprocated, that if we got down to a choice of either Pocatello or Fort Peck, it is our conviction that we have a great deal in our favor. And it is my hope that those gentlemen who have had a chance to go into this report in detail will be able this morning to justify the position we are taking before this committee.

Senator HICKENLOOPER. I suppose I should apologize for even posing this in the nature of a question, but I should assume that if

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impartial examination of these two sites did show that Pocatello had an advantage to the Government, and to the project over the Fort Peck site, that probably would be the site we would have to support: the one that would be the most advantageous. Therefore, I ask the question, if there are specific items of dispute in which your delegation believes that it can show that this report is wrong. If you have others here who could do that, I would personally be interested in hearing them.

May I ask one other question?

Is the only report that you have seen on this matter the report of Smith, Hinchman & Grylls, Inc.?

Representative MANSFIELD. Yes, sir.

Senator HICKENLOOPER. Have you seen any other surveys or reports that have been conducted in regard to the Fort Peck site?

Representative MANSFIELD. No, sir; although I did hear in this meeting in Senator Murray's office last night, with the Montana delegation, that there was a report put out by General Pick of the engineers, about which I know nothing, and which I heard of for the first time at that meeting last evening.

Senator HICKENLOOPER. Do you know whether an attempt has been made to get that report?

Representative MANSFIELD. Senator Murray, I understand, has been bending every effort to get that report, so that it can be gone into.

Senator HICKENLOOPER. I think that is all.

Representative MANSFIELD. May I say one more word?

Senator Tydings asked me if the Montana press was behind this question. I said "yes," emphatically. I want to add to that that there is not one person in the State of Montana that I know of who is against this proposition. We are all united, and we all want it.

The CHAIRMAN. Well, that does not come as any great surprise to me.

Representative PRICE. Mr. Chairman, may I say something?

The last hearing I sat in, there was a community that did not want any part of anything like this.

Representative MANSFIELD. We are different.

Representative DURHAM. When was this report first made available to the Senator's office?

Representative MANSFIELD. I believe it was either yesterday or the day before that this report was made available from this Detroit concern to your office, Senator Murray.

Senator MURRAY. We got it just a couple of days ago, and we turned it over to Mr. Skibbins as soon as we had the opportunity.

Representative DURHAM. When did you request this report? When was the report requested?

Senator MURRAY. About a week ago, I guess. We got it promptly. We did not get the engineers' report, because that is confidential, and they were trying to have it reclassified so that it could be made available to us.

Representative MANSFIELD. That is the Army engineers?

Senator MURRAY. Yes. That report was made to the Secretary of the Army, and therefore we had to work through that channel in order to get access to it.

Representative DURHAM. I just wanted to be sure that the report was made available.

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Senator HICKENLOOPER. I would like to ask Senator Murray if he has any opinion as to what the Army engineers' report concluded, that he can express at this time.

Senator MURRAY. I think their report is purely factual and does not make any determination of the issues.

Of course, I understand that the Army has expressed itself to other agencies of the Government with reference to the conditions in both sites.

The CHAIRMAN. Mr. Mansfield, thank you very much indeed. We were glad to see you, and we are glad you have had an opportunity to state your views.

Representative MANSFIELD. I want you to know that we appreciate the opportunity to state our views, too.

Mr. LOBLE. May I introduce the Governor of the State of Montana. John Bonner, who is here on this mission to present, on behalf of the State of Montana, our position.

STATEMENT OF HON. JOHN W. BONNER, GOVERNOR OF THE STATE OF MONTANA

Governor BONNER. Mr. Chairman and gentlemen of the committee: I want to thank you for the courtesy of permitting us to appear here. I know that you are all busy. But we consider this a matter of vital moment not only to the people of Montana, but to the United States as well.

To begin let me say that we do not approach this matter from the standpoint of selfish interest at all. We bear in mind at all times the security of the people of the United States and the welfare of all the people of the United States. But at the same time we feel—and I express the opinion of all the people of Montana—that due consideration was not given to Montana in the selection of this particular site.

I was interested in the question asked by a member of the committee as to the engineeers' report. I am referring now to those from Detroit. We have gone into that. And permit me to say also that this is my second trip to Washington in regard to this project. I was here approximately 2 weeks ago.

A question was asked as to the engineers' idea as to the site, and I can only answer this: I have not had access to the engineers' report, but I did talk with General Pick, Chief of the Army Engineers, who is very familiar with the waters of the United States, and particularly those in the West. And he told me that in his opinion the Fort Peck site was the site that should be taken.

The CHAIRMAN. Who told you this?

Governor BONNER. General Pick, Chief of the Army Engineers. And he told me further that he felt we were on the right track, and that we were entitled to it.

I might say also that this was my first visit with General Pick. I had never met the General before.

We are here not just in loyalty to the State of Montana; we are here because we believe that Montana has the better site for this atomic plant at Fort Peck. The people of Montana feel that way also.

We do not just base that opinion on loyalty to the State. Mr. Skibbins, who is here today, has been working on this for a consider-

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able period of time, and we have had others making an investigation as far as this plant is concerned.

I know that the committee is busy, but we could go on to tell you about Fort Peck, the power that is available there, the lands that will be donated free to the United States of America, the saving to the people of the United States of America in freight rates if the plant is located at Fort Peck.

In regard to the press of the State of Montana, it is behind this project. And let me tell you further that I happen to be a native of my State, and I do not believe, in my lifetime, at least, I have ever observed such a united front for a project as we have in this instant case. It is not just one particular group. And, as you know, I need not tell you that our State, our people, are always mindful of the security of the United States. They do not think that they know everything in the world, but they do feel that in this particular instance due consideration was not given to the State of Montana.

I am not going to argue the social factors here today—that is one thing that was put in there—or the climate. I know that when the name "Montana" is mentioned to a lot of people, they think of it as a land of snow. But I think if you investigate the climatic conditions of last winter, you will find Montana, as far as the Western States are concerned, in the best position. You will find, I think, that in and about Pocatello they were snowbound, while our roads were open.

Permit me to say further that we are closer to Washington, D. C., than is Pocatello, Idaho. And while I do not claim to be a military expert, nevertheless I know that as far as atomic energy is concerned, from the standpoint of a defense proposition, there can be no reason why these plants should be laid out in one grid as required by the situation at Pocatello, rather than being scattered, as would be the case at Fort Peck.

That is something that should be considered from the standpoint of the security of the United States. For example, in the case of the projects like Hanford, and as would be the case in Pocatello and that area, if you had some disaster occur in war, they could be destroyed by the enemy; or if you should have an earthquake there, you have lost your whole group of defenses.

On the other hand, if you have them scattered, as would be the case at Fort Peck, the chances, in either case, would be much better.

Mr. Chairman, and gentlemen of the committee, that is all I have to offer. We do have Mr. Skibbins here, and he will have some facts to present to you.

We sincerely believe—or would not be here—that on the record and on the facts we have a preferable site to that of Pocatello, Idaho.

Thank you, Mr. Chairman.

The CHAIRMAN. Governor, speaking about location, I remember a hearing that I attended about a year ago when Mr. Martin of the Glenn L. Martin Aircraft Corp. was here. Senator Reed of Kansas suggested it might be better if he moved his plant from Baltimore to his State of Kansas, because it would be less vulnerable to enemy attack. Mr. Martin replied that if you take a look at the map, not a mercator projection map but a polar projection air map, you find that if you put the plant in Kansas it would be closer to probable attack than where located in Baltimore.

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So as far as the exact location is concerned, I do not think there is much choice from a defense standpoint.

Governor BONNER. Well, I may be in error, and if I am you should correct me; but I think this very committee said it would be within 24 hours of Chicago.

The CHAIRMAN. By rail?

Governor BONNER. By rail.

The CHAIRMAN. Of course, either one of them would be.

Governor BONNER. Montana is closer.

The CHAIRMAN. What is Montana, by rail?

Mr. LOBLE. On the main line of the Great Northern it is much less from Glasgow to Chicago. I understood it was 24 hours from eastern industrial centers, and that is true. That is the fastest western line, the Great Northern.

Of course, we have other lines; but that is right on the main line.

The CHAIRMAN. How much difference is there?

Mr. LOBLE. I think it is substantial. I understand Arco is on a branch line that they cannot even haul cattle on, on account of the condition of the line. The branch line runs finally to the main line. It is much quicker from Glasgow on a straight run to the East than it is from any other place.

Governor BONNER. That is one of the things that we were interested in, Mr. Chairman, in connection with those different facts given by the Commission, you see.

The CHAIRMAN. I want to thank you very much, Governor. I am glad you came along to tell us about it.

Representative COLE. May I inquire, Mr. Chairman, in view of the fact that the Governor has said that the Chief of the Army Engineers has expressed a preference for the Fort Peck site, if his group intends to have General Pick come down to express his viewpoint.

Governor BONNER. We are trying to get the general; and I will try again. I would like to have him here.

Representative COLE. Governor, you also made reference to the fact that there would be ample available free land for this site. Does that mean that all of the land which the Commission would feel would be necessary for the site would be free to the Government?

Governor BONNER. That is my information, yes. And I do not know whether you have been there, but I might say also that Glasgow is a very fine town and community, and would have all the facilities, to begin with.

Of course, I realize that regardless of what site was selected, you would have to have more buildings.

The CHAIRMAN. Any other questions, gentlemen?

Senator Ecton, you and Mr. Mansfield may feel free to ask questions if you wish.

Senator ECTON. Not at this time, Mr. Chairman. But as a member of the Montana delegation, I certainly want to express my appreciation to you and to your committee for providing the opportunity for the Montana Governor and the other representatives from our State to have this hearing.

I think you are acquainted with the fact that a couple of weeks ago Mr. Lilienthal informed all of us that due to the process of elimination, on scientific evidence collected over the past 12 months, the

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Atomic Energy Commission had decided on the Idaho site. We informed Chairman Lilienthal, I believe, at that time, that Montanans were a persistent group of people, and that we hated to be nosed out in the race when we were apparently so close to winning it.

We appreciate very much the fact that you and your committee are taking time off from a very busy session and from your numerous duties to give us this opportunity to present our case to you.

The CHAIRMAN. Thank you very much, Senator.

Mr. LOBLE. Mr. Chairman, the next witness is our principal witness, Mr. Skibbins.

I might say, before I call him, that the earthquakes that occurred in Idaho and in Washington yesterday were purely a coincidence in reference to this hearing; they were not by prearrangement.

The CHAIRMAN. There is no damage, however, at Hanford, I understand.

Senator HICKENLOOPER. You are absolutely certain that the heat generated by this hearing did not contribute to the earthquakes?

Mr. LOBLE. I am not certain of that, Senator. We live in an earthquake country, which we have now transferred over to Hanford and Bonneville and over to Washington.

Mr. G. J. Skibbins is an industrial engineer of the Montana Chamber of Commerce. He was a pilot in the last war, and received the Purple Heart. That is not of very great importance here, but I mention it because we are very proud of him in Montana. He has worked intensely, day and night, on this matter for us.

What he is going to present is factual in nature. He has examined the report of Smith, Hinchman & Grylls, Inc., which we think is entirely erroneous. There are many so-called factual matters in there that we know are not factual matters.

The CHAIRMAN. I have asked Mr. Loble to go ahead and testify, and then submit whatever information and exhibits he wishes to submit later, which I understand is your procedure.

Mr. Skibbins?

STATEMENT OF G. J. SKIBBINS, INDUSTRIAL CONSULTANT, MONTANA CHAMBER OF COMMERCE, HELENA, MONT.

Mr. SKIBBINS. Mr. Chairman and gentlemen, I would like to say that everything I am going to say to you here today I believe is the absolute truth.

You gentlemen are concerned entirely with the manner of procedure in arriving at this decision, and not in anything else, although you realize that the people of Montana think that this is a fine project.

I will confine my remarks to the point, namely: How is the decision arrived at? Is there an evidence that was used to make this decision that is erroneous? Or is there complementary evidence which can be introduced at this time which would indicate that a reevaluation might be necessary?

I might say, because of the fact that we have gathered so much evidence, and because it all points in exactly one direction, that that is the maddest bunch of polecats that we ever saw out there in Montana, and everyone is very, very much stirred up.

Well, let's get down to cases.

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On the subject of land cost, the Smith, Hinchman & Grylls, Inc., report indicates costs of $1,500,000 in the Pocatello area. At the Fort Peck site they have indicated in their maps, there, a block of 400,000 acres, but in the manner in which that block was made, a large amount of private land was included. That block can be reanalyzed and can be arranged in a different pattern to include, instead of 400,000, a steady large square block of 457,000 acres, the ownership of which is 95 percent Government land, and 5 percent private land, and not 83 percent Government land as indicated in the Smith, Hinchman & Grylls, Inc., report.

Of the 5 percent private land, there are 30 folks down there who inherited the land from their grandfathers, and maybe they throw a few cows or some sheep out in that area, and it is not good for much else. There is to our knowledge not a soul living in that area of 457,000 acres. The private land is guaranteed to you by the Glasgow Industrial Committee, which will buy it up, because it isn't worth much anyhow, and they will turn it over to the Atomic Energy Commission.

In other words, instead of the item in the Smith, Hinchman & Grylls report, indicating a cost of $1,500,000 for land at Fort Peck, the cost is zero. And there is a saving of $1,400,000 if the plant were located at Fort Peck, because that is the cost they list at Pocatello.

I am going to switch very fast, here, to one subject after another.

As will be testified later by a competent authority in freight rates, whose testimony is to my mind almost beyond question, the savings in freight rates are going to run to $20,000,000 at this site. That is a lot of money. You will also find, as we cite the testimony of the Smith, Hinchman & Grylls report, that they show a 5-percent advantage for freight coming into the Arco area.

Now, it is incomprehensible why competent railroad authorities were not consulted to decide exactly what this freight advantage would be.

I am submitting as part of my testimony an analysis prepared by the Board of Railroad Commissioners of the State of Montana, an analysis of class rates going into Pocatello and to Glasgow from the logical industrial points in the East, from which the equipment that will be used there will be shipped, and it shows advantages up to 52 percent, with the bulk of them lying between 20 and 30 percent. That means that in a large freight bill there is going to be an awful lot of money involved on this point.

(The statement referred to is as follows:)

STATEMENT OF H. ROBERT GUSTINE, ASSISTANT RATE CLERK FOR THE BOARD OF RAILROAD COMMISSIONERS, STATE OF MONTANA

There are attached exhibits A, B, and C, showing class rates from Eastern Trunk Line, Central Freight Association, and Western Trunk Line territories to Pocatello, Idaho, and Nashua, Mont. (railhead for Fort Peck, Mont.).

Exhibit A is a statement showing class rates in cents per 100 pounds from Eastern Trunk Line, Central Freight Association, and Western Trunk Line territories to Nashua, Mont. This statement shows the base rates and also those rates as increased under the ex parte increases. The increased rates are also subject to an additional 5-percent increase, with the exception of the rates from St. Paul, Minn., which are subject to a 4-percent increase, under authority granted in ex parte 168.

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Exhibit B is a statement showing class rates in cents per 100 pounds from Eastern Trunk Line, Central Freight Association, and Western Trunk Line territories to Pocatello, Idaho. This statement shows the base rates and also those rates as increased under the ex parte increases. The increased rates are also subject to an additional 5-percent increase, with the exception of the rates from St. Paul, Minn., which are subject to a 4-percent increase, under authority granted in ex parte 168.

Exhibit C is a statement showing class rates in cents per 100 pounds from Eastern Trunk Line, Central Freight Association, and Western Trunk Line territories to Pocatello, Idaho, and Nashua, Mont.

It also shows the percentage of decrease in rates to Nashua under Pocatello. The percentage of decrease to Nashua varies from a high of 52 percent from St. Paul to a low of 8 percent from Milwaukee, Wis. This exhibit shows that a considerable amount of freight revenue can be saved in shipping to Nashua, Mont., instead of Pocatello, Idaho.

In all of the exhibits the class rates shown are first, fifth, and class A to E, inclusive.

The rates fifth class and lower would apply to all carload commodities.

EXHIBIT A.—*Statement showing class rates in cents per 100 pounds from Eastern Trunk Line, Central Freight Association, and Western Trunk Line Territories to Nashua, Mont.*

	Rate	Classes							Percent
		First	Fifth	A	B	C	D	E	
To Nashua, Mont., from—									
St. Paul, Minn	Base rate	263	99	118	85	79	59	46	
	With increases	279	143	170	122	114	85	66	+4
Chicago, Ill	Base rate	322	121	145	105	97	72	56	
	With increases	493	185	223	161	149	110	86	+5
Milwaukee, Wis	Base rate	309	116	139	100	93	70	54	
	With increases	474	178	213	154	143	108	83	+5
Nashua, basis Glasgow:									
Indianapolis, Ind	Base rate	344	129	155	112	103	77	60	
	With increases	526	198	238	171	158	118	93	+5
Cleveland, Ohio	Base rate	362	136	163	118	109	81	63	
	With increases	554	209	250	181	168	124	96	+5
Pittsburgh, Pa	Base rate	378	142	170	123	113	85	66	
	Within creases	579	218	260	189	173	130	101	+5
Trenton, N. J	Base rate	425	159	191	138	128	96	74	
	With increases	651	244	293	211	196	148	114	+5
New York, N. Y., same as Trenton, N. J.									
Boston, Mass	Base rate	438	164	197	142	131	99	77	
	With increases	671	251	301	218	200	151	118	+5
Portland, Maine	Base rate	444	167	200	144	133	100	78	
	With increases	680	256	306	220	204	154	120	+5

Tariff authority: From St. Paul, Chicago, Milwaukee Transcontinental Freight Bureau, Tariff No. 57-B; from Indianapolis, Cleveland, Pittsburgh Central Freight Association Tariff No. 491-D; from Trenton, New York, Boston, Portland, Maine, Trunk Line Tariff Bureau, Tariff No. 107-C.
4 percent and 5 percent are X-168 increase.

EXHIBIT B.—*Statement showing class rates in cents per 100 pounds from Eastern Trunk Line, Central Freight Association, and Western Trunk Line territories to Pocatello, Idaho*

	Classes							X-168 increase (percent)
	First	Fifth	A	B	C	D	E	
To Pocatello, Idaho, from—								
St. Paul, Minn.:								
Base rate	400	150	180	130	120	90	70	
With increases	576	216	259	187	173	130	101	4
Chicago, Ill.:								
Base rate	409	153	184	133	123	92	72	
With increases	626	234	281	204	189	141	110	5
Milwaukee, Wis., same as Chicago.								

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EXHIBIT B.—*Statement showing class rates in cents per 100 pounds from Eastern Trunk Line, Central Freight Association, and Western Trunk Line territories to Pocatello, Idaho*—Continued

	Classes							X-168 increase (percent)
	First	Fifth	A	B	C	D	E	
To Pocatello, basis Batise Springs:								
Indianapolis, Ind.:								
Base rate	422	158	190	137	127	95	74	
With increases	646	243	291	210	195	145	114	5
Cleveland, Ohio:								
Base rate	452	170	203	147	136	102	79	
With increases	693	260	311	225	209	156	121	5
Pittsburgh, Pa.:								
Base rate	469	176	211	152	141	106	82	
With increases	719	270	323	233	216	163	125	5
To Pocatello, basis Batise Springs:								
Trenton, N. J.:								
Base rate	518	194	233	168	155	117	91	
With increases	794	298	356	258	238	179	139	5
New York, N. Y.:								
Base rate	525	197	236	171	158	118	92	
With increases	804	301	361	261	243	181	141	5
Boston, Mass.:								
Base rate	535	201	241	174	161	120	94	
With increases	819	308	369	266	246	184	144	5
Portland, Maine:								
Base rate	545	204	245	177	164	123	95	
With increases	835	313	375	271	251	189	145	5

Tariff authority: From St. Paul, Chicago, Milwaukee, Transcontinental Freight Bureau, Tariff No. 57-B. From Indianapolis, Cleveland, Pittsburgh, Central Freight Association, Tariff No. 491-D. From Trenton, New York, Boston, Portland, Maine, Trunk Line Tariff Bureau, Tariff No. 107-C.

EXHIBIT C.—*Statement showing class rates in cents per 100 pounds from Eastern Trunk Line, Central Freight Association, and Western Trunk Line territories to Pocatello, Idaho, and Nashua, Mont., with differentials and percentages favoring Nashua over Pocatello*

	Classes							Ex parte 168 increase (percent)
	First	Fifth	A	B	C	D	E	
From St. Paul, Minn., to—								
Pocatello, Idaho	576	216	259	187	173	130	101	4
Nashua, Mont	279	143	170	122	114	85	66	4
Rate differential	297	73	89	65	59	45	35	
Percentage decrease	52	34	34	35	34	35	35	
From Chicago, Ill., to—								
Pocatello, Idaho	626	234	281	204	189	141	110	5
Nashua, Mont	493	185	223	161	149	110	86	5
Rate differential	133	49	58	43	40	31	24	
Percentage decrease	21	21	21	22	21	22	22	
From Milwaukee, Wis., to—								
Pocatello, Idaho	626	234	281	204	189	141	110	5
Nashua, Mont	474	178	213	154	143	108	83	5
Rate differential	52	56	68	50	46	33	27	
Percentage decrease	8	24	24	25	24	23	25	
From Indianapolis, Ind., to—								
Pocatello, Idaho	646	243	291	210	195	145	114	5
Nashua, Mont	526	198	238	171	158	118	93	5
Rate differential	120	45	53	39	37	27	21	
Percentage decrease	19	19	18	19	19	19	18	
From Cleveland, Ohio, to—								
Pocatello, Idaho	693	260	311	225	209	156	121	5
Nashua, Mont	554	209	250	181	168	124	96	5
Rate differential	139	51	61	44	41	32	25	
Percentage decrease	20	20	20	20	20	21	21	
From Pittsburgh, Pa., to—								
Pocatello, Idaho	719	270	323	233	216	163	125	5
Nashua, Mont	579	218	260	189	173	130	101	5
Rate differential	140	52	63	44	43	33	24	
Percentage decrease	19	19	20	19	20	20	19	
From Trenton, N. J., to—								
Pocatello, Idaho	794	298	356	258	238	179	139	5
Nashua, Mont	651	244	293	211	196	148	114	5
Rate differential	143	54	63	47	42	31	25	
Percentage decrease	18	18	18	18	18	17	17	

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EXHIBIT C.—*Statement showing class rates in cents per 100 pounds from Eastern Trunk Line, Central Freight Association, and Western Trunk Line territories to Pocatello, Idaho, and Nashua, Mont., with differentials and percentages favoring Nashua over Pocatello*—Continued

	Classes							Ex parte 168 increase (percent)
	First	Fifth	A	B	C	D	E	
From New York, N. Y., to—								
Pocatello, Idaho	804	301	361	261	243	181	141	5
Nashua, Mont	651	244	293	211	196	148	114	5
Rate differential	153	57	68	50	47	33	27	
Percentage decrease	19	19	19	19	19	18	19	
From Boston, Mass., to—								
Pocatello, Idaho	819	308	369	266	246	184	144	5
Nashua, Mont	671	251	301	218	200	151	118	5
Rate differential	148	57	68	48	46	33	26	
Percentage decrease	18	19	19	18	19	18	18	
From Portland, Maine, to—								
Pocatello, Idaho	835	313	375	271	251	189	145	5
Nashua, Mont	680	256	306	220	204	154	120	5
Rate differential	155	57	69	51	47	35	25	
Percentage decrease	19	18	18	19	19	19	17	

Tariff authority: From St. Paul, Chicago, Milwaukee, Transcontinental Freight Bureau, Tariff No. 57–B. From Indianapolis, Cleveland, Pittsburgh, Central Freight Association Tariff No. 491–D. From Trenton, New York, Boston, Portland, Maine, Trunk Line Bureau, Tariff No. 107–C.

Disposition of fractions on percentages:
Fractions of less than ½ are dropped.
Fractions of ½ or more are carried to the next whole number.

AFFIDAVIT OF H. R. GUSTINE

STATE OF MONTANA,
County of Lewis and Clark, ss.:

I, H. Robert Gustine, do hereby certify that I have prepared the foregoing exhibits A, B, and C, and that the rates shown thereon as taken from the Transcontinental Freight Tariff Bureau, Tariff No. 57–B, Central Freight Association, Tariff No. 491–D, and the Trunk Line Tariff Bureau, Tariff No. 107–C, and L. E. Kipp's Tariff of Increased Rates and Charges, all of which are approved and legally on file with the Interstate Commerce Commission, Washington, D. C., the same showing the differential of rates from Eastern Trunk Line, Central Freight Association, and Western Trunk Line Territories to Pocatello, Idaho, and from the same points to Nashua, Mont., are true and correct to the best of my knowledge and belief.

H. ROBERT GUSTINE.

Subscribed and sworn to before me this 11th day of April 1949.

[SEAL] H. L. GUSTINE,
Notary Public for the State of Montana, residing at Helena, Mont.

My commission expires February 3, 1952.

Mr. SKIBBINS. An unusual factor in fuel costs at the Fort Peck area has been completely overlooked, although it was brought to the attention of the organization by competent people in Montana when this survey was being made. That factor is this: When they were building the Garrison Dam, they uncovered a heavy coal seam and got 5,000,000 tons of mighty good coal in that area, which they have learned how to store to last a good many years. It will not slack in a few days or a few months. That 5,000,000 tons cannot go into the normal channels of trade and supply, because it will put all the coal operators out of business in North Dakota.

The folks out there are very much interested in it. The Government doesn't know what to do with it. And it is extremely peculiar that that 5,000,000 tons was not mentioned as the source of fuel for the project, which it would be if an interest were displayed in the

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Fort Peck area. Presumably that 5,000,000 tons would merely be turned over to the Atomic Energy Commission at Fort Peck. The cost and freight has been estimated by the two railroads concerned, in advance of any definite final decision, as from $2.90 to $3 per ton to deliver it from Garrison to Fort Peck.

This means that the 500-ton-a-day requirement of this particular B. t. u. coal, 7,000 B. t. u. coal, could be laid into Fort Peck at a cost of $1,500 a day.

Now, the very best and most favorable estimate on Pocatello goes up to $2,000 a day. That means $500 a day saved on fuel.

I am also reliably informed by Montana sources and coal operators that other mines could deliver their coal at Fort Peck—but were not asked for a rate on it—at never more than half the per ton cost or per B. t. u. cost at Pocatello. Annual fuel savings of $182,500 every year that this plan is in operation, may be made on this single item, because of the fact that the entire eastern half of Montana and a good section of North and South Dakota are underlaid with coal.

On the subject of housing, there is no way for the Commission—although it would very much like to, and it is not to be blamed—to completely avoid responsibility for housing and community facilities, except with the wholehearted cooperation of the community involved. On the subject of housing, we have gotten together the Montana Contractors Association, Glasgow contractors and banks, and a group of Spokane, Wash., mortgage and building companies, who have urged most strongly their ability to construct for the Atomic Energy Commission, using their own funds and the sources known to them, a 500 or more home subdivision for the city of Glasgow, which will be available to the people working at the AEC installation on a rental and not on a purchase basis.

A great deal has been done on this housing problem. I notice that releases regarding Arco say that the local communities are expected to absorb the housing. We are making a definite offer that the people who are responsible for housing in Montana and in the Northwest will build for rental as many houses as are required in the Fort Peck area. The land is owned by the city. It does not have the situation that you have in Arco where land was worth $100 and $1,900 the next day for the same lot. This land is going to be turned over by the city at a very, very low rate, which is the way the job should be done. Because we do not believe in wildcatting of that kind in Montana.

On the subject of employment, screening, and labor turn-over costs, in Montana the Unemployment Compensation Commission has set aside the sum of $60,000 to construct an employment office at the AEC site in the Fort Peck area. In addition, the Commission will allocate funds from its annual budget to completely staff this office with trained labor recruiters who can screen and produce all of the applicants required for AEC positions, in construction and in permanent operation.

I won't go through the entire subject here, other than to say that the chairman of the commission has surveyed every office in the State, and in the last 3 months they have found that they can guarantee 10,000 men for this project, all of them from the State of Montana; and over and above that is your drifting and transient labor, which has caused so much difficulty in most of the construction projects in the Northwest.

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The Commission is able to screen and take care of the whole job of employment in that area, it feels, because there are so many Montana people who require work. There is a situation there where you have 4,500 veterans who were on unemployment-compensation rolls last month, and who can only expect seasonal employment. And those are the fellows that I had the privilege of fighting alongside of in this war. That situation is apparent to us.

We had 12,000 unemployed last month. We are deeply concerned about the fact. The people who know something about labor in Montana say that we can provide the type of labor that is not going to be leaving every few days, and is not going to be switching from job to job. I understand that the turn-over costs within the Commission are $350 per person, and we feel that that factor should be considered very carefully; especially when we know that the labor will stay there, because we are going to give them the houses. And they are not going to stay in any other area unless those houses are provided.

There are several other costs that are interesting.

Let us take the matter of fencing. At Pocatello there is the necessity for constructing utility posts, security fences, and an overhead steam-transmission line, according to the Smith, Hinchman & Grylls report. This will have to be slow digging in hard lava. At Fort Peck there is no such expensive rock work for this purpose. According to the Detroit engineers' estimates, the savings in fencing costs for the security fence would run to half a million dollars, and the other requirements for rock work in transmission lines and overhead piping would conservatively be estimated as an over-all total of $1,500,000.

On the subject of water costs, we find one of the most interesting situations. The only reason Fort Peck does not show a really tremendous advantage in costs of water from the 175-mile-long Fort Peck Reservoir is that the Smith, Hinchman & Grylls report indicates that they have received word of a charge of from 1 to 15 cents per thousand gallons of this water out at the reservoir. In its high ranges, this charge would be higher than that for drinking water in most cities of Montana. Discussions with officials of the Missouri Interagency Committee and the Corps of Engineers and the people working at Fort Peck who are in charge of its operation reveal that they have no knowledge of any law or any regulation now enacted by which they could justify this charge. The practice in Montana is to file at the county courthouse for water, and then, if no other user is hurt, receive the water free.

In southeastern Montana, our considerable investigations of the synthetic-fuel proposition have revealed that the procedure for obtaining quantities of water is to merely file in your county courthouse. And, if there is one thing that the State of Montana is left with, it is plenty of chasers for a good drink. And yet this reported cost of 1 to 15 cents per thousand gallons comes out of the Department of Interior, to completely prejudice the costs of steam and of water in this Smith, Hinchman & Grylls report.

A bookkeeping charge of this kind between agencies of the Government for water which will return to the stream and be reused, in my opinion cannot be justified. This item should be eliminated. It represents a cost figure of $3,050 per day against the Montana

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site, and, along with electric-power cost mistakes, forms the main argument for the Pocatello claim of favorable operating costs.

The annual amount of this water cost against the Montana site is $1,113,250.

Items such as these, thrown into what is represented as a technical and objective discussion of costs, discredits other items, such as the representation that a pumping plant taking water out of Fort Peck Lake above the ground would cost as much as drilling 500 feet through hard lava 36 times for a water system at Arco, Idaho.

The availability of materials is another point that was weighted very heavily in this Smith, Hinchman & Grylls report. The Pocatello site is indicated as being more favorable.

As the factual testimony on freight rates, which I hope you will have time to go through, will indicate, many extremely important omissions of sources of materials that apply to this specific proposition were made in the Smith, Hinchman & Grylls analysis of freight rate charges; in every case, without exception, to the detriment of the Fort Peck site.

I will now discuss evidences of partiality in the Smith, Hinchman & Grylls report.

Within this report, or rather, attached to it, is a consultant's preliminary report, a Comparison of the Pocatello and Fort Peck Sites, by Harold T. Stearns of Hope, Idaho. I presume that this material was used in order to get the advice of persons who were familiar with the areas.

The CHAIRMAN. By whom is he employed?

Mr. SKIBBINS. Hope, Idaho; yes, sir.

The CHAIRMAN. But his residence is in Idaho?

Mr. SKIBBINS. Hope, Idaho, yes, sir.

In discussing climate when making his comparisons, Mr. Stearns, of Hope, Idaho, says:

> Persons living in this part of Idaho—

that is, Arco—

> are used to the wind, but outsiders frequently leave jobs because of the wind.

Regarding winds in Fort Peck, he says:

> No drifting sand, because of the absence of this material in most of the area.

I can appreciate his disappointment.

In Pocatello, Mr. Stearns states that the "sunlight is abundant and the climate is healthy."

Regarding Fort Peck in this respect, he says:

> Not familiar with the climate at this site. Probably lower temperatures than at the other site.

Usually in making a comparison when you are not familiar with one side, you do not judge both. This comparison in the report, in its detail, without going into some of the more serious parts of it, should probably be reconsidered and removed from the material that is being used in this evaluation.

Senator HICKENLOOPER. Mr. Chairman?

The CHAIRMAN. Senator Hickenlooper.

Senator HICKENLOOPER. Mr. Skibbins, is that portion of the report on the climate, as between the Idaho site and the Fort Peck site, that

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which generates the determination that the Fort Peck site is "poor" and the Pocatello site is "good"? I mean, is there other evidence on the climate, other than what you have read there?

Mr. SKIBBINS. Oh, yes. I understand that the climate information is particularly interesting, because the climatic data for the Fort Peck area in the Smith Hinchman & Grylls report were primarily taken from Havre, Mont., information. And, if there is anything that is a curse to the people of Montana, it is the fact that that weather station is situated there in that freak bowl that gets the worst temperatures of the United States and the worst conditions. And the people in Great Falls and the people in Helena and the people in Butte and the people in Glasgow and the people in Miles City have utterly different situations; and yet they get constant letters of condolence from people in New York City, who hear it is 58 below in Havre. Then they write them back and tell them it is only about 10 above in Great Falls, with the result that the people in the East think we are all just lying about our weather out there.

That material that is reported, and has been for 58 years, on the freak conditions in Havre should be considered as coming from a freak report. In fact, that is why the weather station is there; because it is an unusual situation in the United States. And it is rather curious to compare it with the Glasgow area, which is a good many hundreds of miles away.

The CHAIRMAN. How far is the weather station from the Fort Peck site?

Mr. SKIBBINS. Three hundred eighty miles, sir.

Senator HICKENLOOPER. Which direction?

Mr. SKIBBINS. Fort Peck is to the east, sir.

The exchange of correspondence, to be reported on later connection with the interest of the Department of the Interior in the location of this plant, should not have been quoted by Smith, Hinchman & Grylls as sources for their cost figures.

The CHAIRMAN. Well, in the report do they cite where they got their data?

Mr. SKIBBINS. No, but the data are identical with the letters which we requested for the purpose of this hearings, signed by members of the Department of Interior. So, I presume that they used that information, which is identical. Because, as I will show, they could not have gotten it from any other sources, because the other sources open to them would be the private power companies.

The CHAIRMAN. Thank you.

Mr. SKIBBINS. The original alarms regarding contamination, which, by the way we are not going to discuss, first, because we are not equipped, second, because it is not our purpose here to embarrass the Atomic Energy Commission——

The CHAIRMAN. The staff has just handed me a report entitled "Fort Peck Site Climate: Available Recorded Information on Climate Regarding the Communities and Stations Listed Below Was Used in Compiling This Report", and the following:

Glasgow, Malta, Jordan, Sentinel, Butte Pass, Williston, N. Dak., Havre, Fort Peck, and Telegraph Creek.

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Mr. SKIBBINS. I think you will find, sir, in going over the analysis made, that very heavy weight was given to the Havre figures. Now, that is something that only a competent man would be able to judge.

The original alarums regarding contamination seem to have originated not within the engineering firm making the survey but in a paper written by Dr. Piper of the United States Geological Survey on November 20, 1948, at the same time he suggested a site 200 miles southeast of Portland, Oreg., in an area which yesterday experienced a severe earthquake.

Here is Dr. Piper's report, provided to us at our request.

On page 117 of the Smith, Hinchman & Grylls report is the following statement:

> A cost differential of 5 percent in favor of Pocatello can be anticipated on mechanical and equipment installation, in this case due to increased labor efficiency and freight-rate differential.

In a few minutes an experienced freight man will indicate how completely erroneous and prejudiced that statement is. Suffice it to say that the Interstate Commerce Commission itself would not accept that statement in any way as being true, because of published rates in the United States which indicate to the exact contrary.

Also on that same page savings are indicated in power and water costs. The water cost, as I have indicated before, is a conjecture, as is the statement coming from the Department of the Interior presumably used within this report; and the power costs, as we shall see in a moment, will have to be doubled for purposes of the Smith, Hinchman & Grylls report.

Another statement on this page, in guessing at a $6,000,000 construction job, is that the surveying and engineering firm estimates $150,000, or 2-percent saving in costs at Pocatello, because of differences in soil conditions and labor efficiency. That is pure conjecture, and I am sure that hardly any contractor in this construction year of 1949, especially because of the tremendous amount of work in lava rock that must be done at Pocatello, would dare to indicate within a report that he could say that there was $150,000 saving, without saying at the same time that it was plus or minus 20 percent. And that seems to be the way most contracts are being accepted these days.

On page 118, perhaps the most important page in the Smith, Hinchman & Grylls report, is the summary of the biggest items of all, construction and operational costs.

Each of the seven items in my opinion is extremely questionable, and the fact that the sum of the engineering firm's entire evaluation fails to reveal a point differential over 5 percent between Fort Peck and Arco is a matter that is extremely significant.

In nuclear laboratory work, in the work such as the Atomic Energy Commission does, for example, scientists whose lives depend upon accuracy never quote a quantity or a difference without indicating the percentage of error possible in that quotation.

In the case of this estimate of the $500,000,000 construction job, at a time when construction is the vaguest and most inexact work within our society, it is not realistic to ignore the fact which is widely known by the general public, namely, that you should figure for 20-percent error in a contractor's estimate.

Without further discussion of what is a painful subject, it should be agreed that the validity of such minute calculations of differences be-

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tween the two areas should be retracted, and the facts reexamined for another over-all analysis.

I have here some statements which I will go through very quickly.

One of them is a statement from the State Board of Health in Helena, Mont. As to the credentials of the gentleman making the statement, he is Mr. C. W. Brinck, assistant director of the division of sanitary engineering of the Montana State Board of Health. He states that the information obtained at his meeting with the members of the Atomic Energy Commission—

would indicate that methods are available for the removal of radioactive materials at the proposed site—

at Fort Peck—

appears to be such that the present known methods of handling radioactive wastes could be safely and satisfactorily instituted in this area.

I have here another statement, that I think perhaps should go into the record, because the subject of the slow and gentle 75-year percolation of materials at the Arco site is one which is extremely interesting to the Commission and everyone concerned with this site location, because it directly affects one of the important problems, namely, contamination.

I am quoting from the Water Well Journal. This is the autumn issue of 1948. The subject is Idaho. The author is Mr. H. C. Clark, public health engineer of the Idaho Department of Public Health.

I will read, here, just a few portions of this. We will have it mimeographed and turned in in its entirety later.

A large area in southern Idaho is underlaid with lava beds which are full of crevices and voids. This is clearly shown by the fact that Big and Little Lost Rivers, Birch Creek, Medicine Lodge Creek, and Camas Creek, draining a large mountainous area in eastern Idaho north of Pocatello, sink into the lava flow and there is no surface connection to any stream draining to the sea. It is commonly agreed that the ultimate outlet of water from this drainage area is in Thousand Springs issuing from the walls of the Snake River Canyon near Hagerman.

Now, this is the lava bed in question.

These springs steadily produce many second-feet of water. Some water supplies have their source in these springs or from wells drawing water from this flow.

It is common practice in this area to dispose of wastes, such as raw domestic sewage, municipal sewage, plant effluent, irrigation drainage water, et cetera, into lava crevices, which undoubtedly connect with underground channels bearing ground-water flows. This is borne out by the fact that Thousand Springs water and many wells in the area show intermittent and often gross coliform contamination.

Without going any further with this statement, I will say that it is possible for something to percolate through rock for 75 years, for sewage to percolate in water through rock for any time at all, and still have coliform contamination.

In other words, the tenor of this report to my mind indicates that the waters beneath this lava bed in some areas are flowing very swiftly, swift enough to carry the contamination from municipal sewage plants to springs in the Thousands Springs area, and to contaminate them, and to require chlorination, which is commented on later on in the report.

The subject of geology I will go through briefly. The November 20 report of Dr. Arthur M. Piper, staff scientist to the United States

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Geological Survey, mentioned before, has an interesting comment on the foundation problems at Fort Peck. He says, "Evidently the Bearpaw shale constitutes an inferior foundation material for heavy structures."

Again, in his summary, he states the Bearpaw shale is "incompetent as a foundation."

To clarify the fact that as many inconsistencies exist in this information on foundation and soil conditions as is the case on electric power, let me say that here are some of the conflicting stories.

J. Stewart Williams, another consultant whose report is attached to the Smith, Hinchman & Grylls report, a consulting geologist, says:

Any well-built structure could be considered safe from earthquake damage at the Fort Peck site. The terrain at the site is such that foundations can fit in dry undisturbed bedrock.

Mr. Harold T. Stearns, of Hope, Idaho, states:

Fort Peck: Shale at site full of numerous small faults which move when heavily loaded. The shale contains bentonite which swells and "slakes" when wet.

We herewith submit a report from the geologic staff and the president of the Montana School of Mines, an organization of long and ample repute.

The CHAIRMAN. Are you submitting that for the record?

Mr. SKIBBINS. Yes, sir. And I will read a few items from this report at this time, sir. This will all go in. All of our material will be mimeographed, and presented to you, sir.

The CHAIRMAN. All right.

Mr. SKIBBINS (reading):

Perhaps one of the most important points in favor of the Fort Peck site is the adequate and permanent supply of good water readily available from the 175-mile Fort Peck Reservoir on the Missouri River.

To go on to the subject of foundation materials:

The upland at the proposed Fort Peck site is blanketed with a veneer of glacial drift (ground moraine) consisting of clay, sand, and scattered gravel. Bedrock which is close to the surface consists of many hundreds of feet of dense compact shale (Bearpaw formation), which readily stands firm in steep-cut creek or river bluffs. The shale is highly impervious. We know of no reason why this shale should not serve as a good foundation for buildings or other structures.

I will not continue with that, except to mention the flash-flood conditions. Let me summarize the foundation matter. You find four different authorities and four different opinions on foundations. I submit that in that circumstance it will require a little bit more attention to both sides of the argument before an opinion is expressed that the foundations are not any good at Fort Peck. They seem to support the dam pretty well.

Flash flood conditions have been claimed for the Fort Peck area. Here is E. S. Perry, Chief Geologist, who published the bulk of the ground-water information in the northwest United States, and whose reports have been constantly used by the Geological Survey.

The proposed Fort Peck site is on a broad gently rolling upland near a divide of drainage. It is scarcely conceivable that with topography of this character, and with the character of rainfall and storms in northern Montana—

in other words, with 12 inches a year, there is hardly any—

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that there could be flash floods that would damage installations.

(The report of the Montana School of Mines is as follows:)

MONTANA SCHOOL OF MINES,
Butte, April 11, 1949.

Perhaps one of the most important points in favor of the Fort Peck site is the adequate and permanent supply of good water readily available from the 175-mile Fort Peck Reservoir on the Missouri River. The water can be had by direct pumping from the reservoir which is about 5 miles distant and only 400 feet lower in elevation.

There is no positive assurance of an adequate supply of water from wells at Arco, Idaho, until after the wells are drilled, and the permanency of supply will not be known until after years of pumping, and the draw-down of the ground-water level is determined.

An analysis of the Missouri River water, which supplies Fort Peck Reservoir, shows 186 parts per million total dissolved solids (which is very low) with a hardness of 148 parts per million. This water is used for municipal supply for the city of Great Falls. The mean annual flow, or run-off, for Missouri River is given as approximately 10,000 second-feet by the United States Geological Survey, with a maximum of about 50,000 second-feet in June, and a minimum of about 3,200 second-feet in September.

The cost of installing equipment for pumping water, of course, cannot be estimated without specifications of volume needed, type of pump equipment, size of pipe lines, and other factors. However, it is probable that a single unit delivering 300 gallons per minute, with a lift of about 400 feet, over a distance of 5 miles, will cost approximately $100,000 to $110,000. This would include pump, motor, control equipment, and a 12-inch pipe line. The proportionate cost would decrease if additional units were added.

RADIOACTIVE WATER FROM DISCHARGE

Montana School of Mines has no experience with, or information concerning, probable character of waste water from a plant such as is planned for Arco, Idaho. We would infer that it would not be greatly different from waste water at the Hanford or Oak Ridge plants. We have heard that water from these plants has not materially affected wildlife along the rivers receiving discharge water, and hence we would expect a similar condition in the Fort Peck region. It must be admitted, however, that a procedure of confining the waste water underground and forcing it to pass through 50 or 100 miles of porous lava flows would be more assuring of a safe disposal of waste water.

FOUNDATION MATERIALS

The upland at the proposed Fort Peck site is blanketed with a veneer of glacial drift (ground moraine) consisting of clay, sand, and scattered gravel. Bedrock, which is close to the surface, consists of many hundreds of feet of dense compact shale (Bearpaw formation), which readily stands firm in steep-cut creek or river bluffs. The shale is highly impervious. We know of no reason why this shale should not serve as a good foundation for buildings or other structures. Thin bentonite beds occurring in the shale formation should not prove harmful to properly constructed foundations. A persistent 1 to 2-foot bentonite bed known to occur at depth at the dam site should be several hundred feet deep at the proposed plant site on the uplands, and hence should not interfere with foundation construction.

FLASH FLOOD CONDITIONS

The proposed Fort Peck site is on a broad gently rolling upland near a divide of drainage. It is scarcely conceivable that with topography of this character, and with the character of rainfall and storms in northern Montana, that there could be flash floods that would damage installations.

The above report was compiled by Dr. E. S. Perry, Chief Geologist, Montana Bureau of Mines and Geology.

E. S. PERRY, *Chief Geologist.*

Approved:

FRANCIS A. THOMSON,
President, Montana School of Mines.

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Mr. SKIBBINS. Having concluded that information, I will go on, to one of the final points in our argument here today, sir, which pertains almost entirely to the Smith, Hinchman & Grylls report, and that is as to the subject of electric power. I am going to go through this hurriedly, because I see our time is short.

I am going to report from some letters and some newspaper accounts from the Commission, from the Department of the Interior, and from persons connected with this entire project.

The following information was taken from page 32 of a survey by Arthur M. Piper, and summarizes the water resources, which are given a very poor rating, and summarizes the foundation resources, which are given a very poor rating for the Fort Peck area, and is dated November 8 to 12, 1948.

The report goes on to say that the desired energy of 50,000 kilowatts is currently available only in the sense that generating capacity of the Fort Peck power plant now exceeds that requirement.

Now, however, in regions surrounding the Fort Peck area, as in most of the Nation, existing energy loads tax the full peaking capacity of existing generators.

I would like to quote from a letter addressed to Mr. David Lilienthal by Mr. J. A. Krug, Secretary of the Interior. This letter is dated November 26, 1948. It consists entirely of points which the Department of the Interior wishes the Atomic Energy Commission to consider in connection with its interest in the Fort Peck area, namely, that steps should be taken to prevent pollution of the streams, that consideration should be given to the regulation of wildlife, and the stimulation of grazing, and that attention should be paid to the interests of the Fish and Wildlife Service.

The letter states that at that time two geologists were gathering adequate information on the Fort Peck area, and that it was hoped by Mr. Krug that the decision would be delayed until that report had been prepared. That report is a report of Mr. Piper's, which definitely includes all of these reasons, in my opinion spurious, militating against the Fort Peck area.

Here is a letter to R. C. Price, written by Mr. Warner, director of engineering. This is dated January 28, 1949:

As we have discussed with you, we are now making a comparative study of the Fort Peck, Mont., and the Pocatello, Idaho, sites, and it would be particularly helpful if your comments included information on the Fort Peck as well as on the Pocatello site. As indicated by a copy of a memorandum left with you on January 14, 1949, we have discussed many aspects of our problem with several individuals of the Interior Department * * *.

We understand that sufficient water will be available at both the Fort Peck and Pocatello sites, but that surface water from the reservoir at Fort Peck, which is the more desirable source of supply, will cost between 1 and 10 cents per 1,000 gallons. * * *

In a few years, it is probable that power will be more readily available at Pocatello than at Fort Peck, particularly since Pocatello is destined to become the center of an extensive power grid. * * *

Since the cost per kilowatt capacity is less on the Snake than on the Missouri River and since transmission over shorter lines is possible in the Northwest system, electric energy will ultimately cost less at Pocatello than Fort Peck. At the present time the cost is 0.43 cent per kilowatt-hour at Fort Peck. We understand that for long-range planning it is practicable to assume that the generation cost of Pocatello will be about 0.2 cent per kilowatt-hour less than at Fort Peck.

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Here is another letter of Secretary Krug's, addressed to Carleton Shugg, Deputy General Manager, Atomic Energy Commission:

The capacity of Fort Peck would be able to fulfill the estimated needs until 1952 (22,000 kilowatt) without the additional unit at Fort Peck. When the additional unit is in service the requirements of 51,000 kilowatts in 1955 can be met.

Water is available for the development of 100,000 kilowatts more power at Fort Peck. The Army engineers are now investigating the desirability of this additional capacity.

Regarding the Idaho site:

Power could be supplied to the site by means of a transmission line to American Falls or by partial construction of a BPA Pocatello-Great Falls 230-kilovolt line. Until 1950, when the Anderson Ranch Dam comes into production, there is no Government capacity available to the site except by wheeling from Fort Peck. * * *

The Fort Peck rate would apply to the part of the power supplied to the Montana site from Fort Peck project. An interim rate averaging 5.5 mills is now in effect on this project. This may be revised slightly at some later date.

For the power supplied from Government sources to the Idaho site, it is expected the Bonneville rate will apply, though the application of this rate awaits further studies. It can be estimated that power costs at the Idaho site will be some 2 mills less than at the Montana site.

He stated Montana was 5.5; 2 mills less is the rate of 3.5 for Idaho.

I have here a release of March 23. The headline is "Raver Denies Idaho Project To Get Hungry Horse Power Great Falls." The release is from Kalispell.

Dr. Paul J. Raver, Bonneville Administration head, today disputed recent remarks concerning the Hungry Horse project and the proposed Idaho atomic reactor project.

Raver's views were expressed in a statement to the Flathead citizens' committee.

"The Bonneville Administration does not now have, nor does it expect to have, any application from the Atomic Energy Commission for power for the Idaho atomic plant," Dr. Raver said.

The CHAIRMAN. Is your point that they are going to get it from Fort Peck?

Mr. SKIBBINS. At what site, sir?

The CHAIRMAN. At the Idaho site.

Mr. SKIBBINS. No, sir.

The CHAIRMAN. What are you proving? I just do not understand what you are trying to prove to us.

Mr. SKIBBINS. I will sum it up in just a moment, Mr. Chairman.

The CHAIRMAN. I would like to have your summary now. I do not get all this. What is the point? I want to know. Tell me what it is now.

Mr. SKIBBINS. Here is the point very briefly, sir.

The dire need for power in this project, according to the next statement, will go up to 70,000 kilowatts. We have been informed that the power, according to the statement of one of the members of the Commission, will come from private power sources.

Now, in the Smith, Hinchman & Grylls report of March 1949, in these letters that I have quoted to you, the figure of 3½ mills is constantly used as a cost for the power.

The Administrator of Bonneville states he has no application for service at Arco.

His 1949 plans for the extension of his transmission service shows this line [indicating map] with connections to Hungry Horse going

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to Anaconda and coming down within 5 miles of Arco and going into Pocatello.

Mr. Lilienthal stated on March 29, in writing a letter to Mr. Mansfield, that—

we plan to obtain the power for the station from generating equipment installed at the station, and from the Idaho Power Co.

All these facts make it clear that no public power is involved in the representations of the people making the Smith, Hinchman & Grylls report. No Bonneville grid system is involved, although Mr. Warner's letter of January 28 to Mr. Price in Interior says that—

it is probable that power will be more readily available at Pocatello than at Fort Peck, particularly since Pocatello is destined to become the center of an extensive power grid.

The CHAIRMAN. Your point is that that is not so? That there is not going to be available public power there? Is that your point?

Mr. SKIBBINS. Well, according to the statements that we have received, sir, the representations are that the Government is not, despite these evidences, going to use public power in that area for the immediate needs, and that the Idaho Power Co. is involved..

The CHAIRMAN. Your point is that there is public power now at Fort Peck, and there is private power in Idaho. Is that it?

Mr. SKIBBINS. That is part of it; yes, sir. That is part of it.

The CHAIRMAN. And that is something to be weighed against the Idaho site?

Mr. SKIBBINS. That is part of it.

No, sir; our point is on the Smith, Hinchman & Grylls report, which I will discuss right now.

The Idaho Power Co. published a financial statement on December 31, 1948, and stated that they sold 837,675,516 kilowatt-hours in 1948.

Their statement goes on to say that they paid $2,858,905 in taxes.

Simple division indicates that their tax per kilowatt-hour is 3.4 mills. This power company is reasonably efficient, pays decent wages, and must add another 2 mills for $2,000,000 in wages.

It is inconceivable that they could sell power to the AEC at less than 6 mills per kilowatt-hour.

The CHAIRMAN. In other words, your point is that the estimate for power that they have put in at Pocatello site is too low. Is that it?

Mr. SKIBBINS. That is correct; yes, sir. That is my point.

The CHAIRMAN. Does the engineering report of the Commission indicate that the figure that was used was submitted by the utility company to the engineering firm?

Mr. SKIBBINS. No, sir. I do not believe that any statements have been made regarding any rate having been received from the Idaho Power Co.

I called them up and asked them if they had given anybody a rate, and they said, "No."

The point that we are making here is: How can all these power-cost assumptions favoring Pocatello, favoring Arco, and so forth—how can the cost of steam-generation plants and all this other matter—use a 3½-mill rate for electricity, when it is apparent that the Idaho Power Co. rates, if they are the ones to be used, must be considerably in excess of that?

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Only the extension of the Bonneville grid system from Hungry Horse to Kerr to Anaconda to Pocatello would permit a 3½-mill rate and up to 80,000 kilowatts of power, which is what is required.

Representative DURHAM. In the report, both of them were placed in a very good position, in the final report.

Mr. SKIBBINS. In the discussions of the cost of the steam plant, the cost of operating the installation, the cost of electricity, the Fort Peck site was militated against because it was rated at a 5.5 mills per kilowatt-hour rate, while the Pocatello site was rated at 3.5. It is that confusion that we would like to clear up.

If asked, the Idaho Power Co. would probably set up a 6-mill rate. This should give Fort Peck the advantage on power, because its output is rated at 5.5 mills or less.

Representative DURHAM. It is just a difference in the cost, you are submitting.

Mr. SKIBBINS. Yes, sir.

Now for a brief summary.

We feel a reasonable doubt exists as to any of the preferential analysis regarding the selection of the Arco site. We feel the engineering firm making the survey was perhaps inadequately supplied with the facts, some of which we have elucidated.

We are not in a position of being a fine engineering survey organization. We are just ordinary citizens that have been looking at this thing and wondering what on earth is the story. Because sound reason says, "Here is all the water. Here is all the waste land. Here is all the power. What is the reason that this thing should be put some place else, where they do not have those circumstances, when determinations can be arrived at which point to the fact that there is reason for another judgment?"

It seems clear that no $50,000,000 advantage exists at Arco as stated in the engineers' summary, but on the contrary Fort Peck, Mont., has a $32,900,000 advantage in this general summary, in original costs, and a $3,295,750 advantage in operating costs, every year of operation of the plant.

There are enough discrepancies of judgment, and we feel there is enough uncertainty as to the statement that we have made here to suggest that a thorough and a factual and an impartial investigation could be made at this time with good cause.

The CHAIRMAN. Now, just a minute. Let me get this straight. Are you suggesting an investigation on the basis of mistaken judgment? Or do you suggest some bad motive?

Mr. SKIBBINS. No, sir. I am merely suggesting——

The CHAIRMAN. I do not want to ask you an embarrassing question, but I want to get it straight for the record.

Mr. SKIBBINS. That is not at all embarrassing, sir. We are only interested in securing an adequate evaluation of the facts regarding Pocatello, on the one hand, and regarding Fort Peck, on the other hand. Because we are convinced from everything that we have been able to find out that that is all we have to do to get the plant.

The CHAIRMAN. Do you think you might be slightly biased?

Mr. SKIBBINS. Yes, sir? And that is why we ask that the judgment be made by an authority who would not be biased. And I have no idea how such an authority could be found.

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The CHAIRMAN. Do you allege that this engineering firm was biased in its approach?

Mr. SKIBBINS. I think that the information that they had was not enough for them to come to an adequate decision; and I think that some of the consultants that they used were biased in their approach in some respects.

The CHAIRMAN. Whom do you mean by that?

Mr. SKIBBINS. I am thinking, perhaps, of the gentleman from Idaho.

The CHAIRMAN. Where does he come into the picture, anyway?

Mr. SKIBBINS. He is the consulting geologist whose report is appended.

The CHAIRMAN. Was there a consulting geologist selected from Montana?

Mr. SKIBBINS. No, sir.

The CHAIRMAN. Is that the only place this man works, in Idaho?

Mr. SKIBBINS. I have no idea, sir. I don't know the gentleman, and I have not investigated him.

The CHAIRMAN. I see.

Mr. SKIBBINS. Our point is that in going through any report, you gentlemen have all had experience, and you can tell what they are trying to sell. This report is selling the Pocatello area. I do not think either area should be sold in a report of that caliber. And that is the gist of our remarks.

The CHAIRMAN. On the other hand, they were retained to recommend what in their judgment was the best site, were they not?

Mr. SKIBBINS. That is correct, sir.

The CHAIRMAN. Is that right?

Mr. SKIBBINS. Yes, sir.

The CHAIRMAN. That is what they apparently did.

Mr. SKIBBINS. Well, sir——

The CHAIRMAN. Now, as I get it, your complaint is that the facts upon which they made that recommendation are (1) not sufficient, and (2) not facts; that they are misstatements of fact.

Mr. SKIBBINS. And of opinion.

The CHAIRMAN. And of opinion.

Mr. SKIBBINS. And I think the freight-rate testimony, which would take about 5 minutes, is the classic example of that fact.

The CHAIRMAN. I see.

Do you think you have summed it up pretty well? Is there any other material you would like to put into the record? Perhaps we could receive it and print it.

Mr. SKIBBINS. The only other statement I would like to make, sir, is that all this material will be supplied to anybody who wants it, and we are only interested in getting this plant. We do not want to put anybody on the spot. If we have done so, we cannot help it.

The CHAIRMAN. You are not putting us on the spot, certainly.

Representative DURHAM. We stay on the spot.

Mr. SKIBBINS. We want the truth to be used in the making of this decision, and we feel that we have a fine argument for it. That is the only reason why we came to Washington the first time, and that is the reason we got so very, very irritated by the fact that there seemed to be a run-around in the treatment that we received. And we are dumb enough not to know when we are licked?

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The CHAIRMAN. Thank you very much indeed.

Obviously we cannot finish in this morning's session.

I personally want to examine this engineering survey. Also, I want to examine the Director of Engineering.

Representative HINSHAW. Mr. Chairman, in listening to the statement concerning power, I note that he has taken figures put out in an annual statement by the Idaho Power Co., dividing the total number of kilowatts sold by the sale price, which, of course, results in an average price of power, as between the lowest wholesale rates and the highest retail rates, which the company sells it for.

I wonder if that has been considered in the testimony which the gentlemen gave to us.

Mr. SKIBBINS. May I reply to that, sir?

The CHAIRMAN. Yes.

Mr. SKIBBINS. As a matter of fact, I think if any inquiry were made—which I don't believe has been made—of the power companies concerned for these large blocks of power, scheduled for the next 5 years up to 70,000 or 80,000 kilowatts, it would quickly reveal the rate at which they can provide it.

I think that if that evidence, which is not available in this report, nor in any report that I have seen, were made available, I believe that evidence would bear out the testimony I have presented today. But I cannot speak as to that.

Representative HINSHAW. Is it true that you arrived at the figure you did by simple division of the total amount of power sold and by the total number of kilowatt-hours?

Mr. SKIBBINS. I made the division just as simply as it could be made, ignoring the large block of power proposition, with the understanding that the Commission or the committee might be more interested in checking up on that particular point. Because I think it is vital. After all, what is the rate? That is the essential point of the discussion, and I think that the rate will prove, without any shadow of doubt in my mind, to be above the rate at Fort Peck, Mont.

Representative HINSHAW. But you are willing to admit that that is not a proper way of arriving at any wholesale rate for power: to divide the total income of a power income by the gross number of kilowatt-hours sold.

Mr. SKIBBINS. Well, I don't know about the propriety of it. I would say that it is not more than a few mills apart. I have never been a power-rate engineer, nor connected with a power company.

I also stated that the material I presented was merely the best that I could do in my thinking, and that it merits checking up by competent people who are aware of these problems.

Representative HINSHAW. That is all, Mr. Chairman.

The CHAIRMAN. We obviously cannot finish. We have got to go to the floor of the Senate. We will resume at 2:30.

(Whereupon, at 12:40 p. m., the committee recessed, to reconvene at 2:30 p. m. of the same day.)

AFTER RECESS

(The hearing reconvened at 2:30 p. m.)

The CHAIRMAN. The committee will be in order.

I think the next witness is the person who will testify on the rate situation.

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Mr. LOBLE. May I have one question of Mr. Skibbins, and then I will have the rate man and one other witness, and then we are through.

The CHAIRMAN. Is there to be another witness?

Mr. LOBLE. We have just one local man from Fort Peck.

The CHAIRMAN. What is he going to talk about?

Mr. LOBLE. He lives there.

The CHAIRMAN. Is he a chamber of commerce representative who wants to boast about the town?

Mr. LOBLE. Yes, and show you pictures of it.

Mr. Skibbins, just to clarify the matter that we had up for consideration at the time of adjournment, with reference to the power matter, as to what the cost is at Fort Peck and what the cost is at Pocatello, you were asked a question by the chairman and I do not think it was clear. In a word, give us the picture.

STATEMENT OF G. J. SKIBBINS—Continued

Mr. SKIBBINS. From what we can understand on page 8 of the Smith, Hinchman and Grylls report, the annual power requirements in 1955, when the plant is presumably complete, are stated to be 394,000,000 kilowatt-hours per year. That is plus an additional community demand, also indicated on page 132 that is, the demand for the community serving the plant, of another 20,000,000 kilowatt-hours per year. That gives a total of 414,000,000 kilowatt-hours per year, which is a rather heavy power demand and seems to be an important factor in the development of this plant. This plant, we understand, will eventually develop power itself.

In that 414,000,000 kilowatt-hours per year total, there is a charge at Fort Peck for it, at the present quotations in the Smith, Hinchman and Grylls manual, of 5½ mills. That gives a dollar charge per annum of $2,277,000. That would be the annual Fort Peck bill.

The question is, we would like to know how to compare it with the annual bill at Arco. The thing that is difficult to understand is exactly who is supplying or who will supply the 394,000,000 kilowatts in the Arco area. If it is to be private power, we are aware of the general principle that a public power dam such as Fort Peck would normally be presumed to supply power cheaper than a private operation. Therefore, we think we should be given the advantage in all electric power considerations, in all considerations on the cost of the steam plant and your costs of your operation of your plant that are related to power.

The situation in the report is the reverse. In the report a 3½ mill item is used very generally as the cost of the power. The point that we cannot understand is: Where is that power coming from at 3½ mills, because throughout the Nation I think it is accepted that 3.3 or 3.4 or 3.5 mills per kilowatt-hour is a general average of taxation on private power companies per kilowatt-hour.

The CHAIRMAN. Did you communicate with the Idaho Power Co. at all to check up on this?

Mr. SKIBBINS. Yes; I believe I called them at one time from Montana.

The CHAIRMAN. Did they say that they would furnish the power for the rate that is mentioned in the report?

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Mr. SKIBBINS. The Idaho Power Co.—and here again they are interested in Idaho and in developing Idaho, and they are delighted to see this plant come in, and they certainly——

The CHAIRMAN. I understand all of that, but that is not what I asked you. Did they tell you, when you called on them, that they would sell the power at the price at which the report says they will sell it?

Mr. SKIBBINS. No, sir; they had no information on the price of power, according to the conversation that I had.

The CHAIRMAN. Where did the engineering firm get this figure; do you know?

Mr. SKIBBINS. No, sir; I do not.

The CHAIRMAN. And you say that figure is too low?

Mr. SKIBBINS. Yes, sir; if it is from a private power company, as stated in some of the other evidence submitted this morning.

The CHAIRMAN. How much is it, 3.5 mills?

Mr. SKIBBINS. Yes.

The CHAIRMAN. What do you think it ought to be?

Mr. SKIBBINS. Six mills, if it is private power.

The CHAIRMAN. And so, if they are getting it for 3.5 mills, then the Idaho Power Co. may be selling it at a loss in order to develop Idaho. Is that the only conclusion that you could come to?

Mr. SKIBBINS. You might look at it that way. I know that they sell power to the phospate companies over there in a situation something like that.

The CHAIRMAN. For how much, do you know?

Mr. SKIBBINS. I assume that it is somewhere between 3.5 and 4 mills, because I have been studying the phosphate industry and I know that is something that is required.

The CHAIRMAN. They can sell it at 3.5?

Mr. SKIBBINS. It is a possibility for them to sell it at 3.5; they can sell it at any price.

The CHAIRMAN. They can sell it at any price, but apparently they can sell it at 3.5 and break even, anyway.

Mr. SKIBBINS. I am not sure of the profits on that, and I think that that is a very vital point: Are they making money at that rate?

The CHAIRMAN. I mean, that is no concern of the Atomic Energy Commission if, in considering a site, they find a place where they can get power for 3.5. I cannot quite get the point of your claiming that it should be 6, and that the Commission should look at it on a 6-mill price basis.

Mr. SKIBBINS. My point is this, sir: I do not know of any rates having been quoted, nor have I seen any evidence from the Idaho Power Co. of what rate they will set up for this power load going up to 80,000,000 kilowatts.

The CHAIRMAN. But you do see a price quoted in the report as 3.5?

Mr. SKIBBINS. Yes, sir; but we still do not see that it could come from a private power company in that area, and our point is essentially not the one that is under discussion, but can it not be presumed that in an area such as Fort Peck where you have this large Government dam installed, and which is today selling power, as I have inquired and found out, 35,000 kilowatts constantly at between 1 and 2 mills, which is substantially underneath all of these figures, as dump power, and can eventually develop to 105,000 kilowatts—can it not be presumed logically, and is not this the fundamental reason for all public power

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development, that a Government dam could invariably undersell a private power company for a long-term heavy load such as this? Now, that is the only point that we want to establish on electric power.

Senator JOHNSON. I did not understand the point you made a moment ago about taxes on a private power development. Did I understand you to say that that amounted to approximately the price that this power is supposed to be furnished for? What did you say about taxes on private power?

Mr. SKIBBINS. It is my understanding that throughout the Nation, the average—and I do not have any papers right here with me—that the average of taxation per kilowatt-hour for electric companies is somewhere around 3.4 or 3.5 mills per kilowatt-hour. Now, my memory may be faulty, it may be 3, and I do not know what it is, but that is my understanding, that it is in that range. And my inquiry as to what range it was revealed that it would be amazing if this heavy a load could be permanently supplied at that price.

The CHAIRMAN. I should think you would have asked the Idaho people how they are going to do it.

Mr. SKIBBINS. Well, I did not think that that was my prerogative, because it is my understanding that they were asked for construction power and not for operating power.

Senator JOHNSON. The public-utility agency of Idaho would have to know about that power and would have to authorize it and grant it before they could enter into a contract with anyone.

Mr. SKIBBINS. Sir, my inquiries of the Idaho Power Co. leave me in this position: They have only been asked about construction power. We are interested in talking about Fort Peck, and they have not been asked for a rate. That may be 100 percent wrong, and if it is wrong there are some letters somewhere to prove that it is wrong.

What we are talking about is the entire power load of the operating plant when it is going. That is the thing that we are interested in, in using Fort Peck for that purpose because of its large potential and its present large dump power production, which is not doing Montana any particular good.

The CHAIRMAN. Is there any estimate in the report of how much power they will require when they are operating?

Mr. SKIBBINS. Yes, sir; I just quoted the figures. The plant itself is 394,000,000-kilowatt-hours per year, according to the report, and there is a 20,000,000 kilowatt-hour per year addition for the community which will of necessity have been established by that time.

In other words, an 80,000-kilowatt capacity has to be right there when this plant is operating. That is what we are trying to find out, as to whether we can develop an advantage, because we have got this plant in operation at Fort Peck and we do not see any plant in operation in or near Arco.

If I may finish up my remarks, I merely want to point out again that we are not experts of anywhere near the caliber of the Commission or anywhere near the caliber of Smith, Hinchman & Grylls, which in my opinion is a fine engineering firm. I would regret very much if any individuals in the Commission or in the engineering firm were put on the spot, because that is not the kind of a thing that we are trying to develop, no matter what impression we may have created.

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The CHAIRMAN. I do not know what you mean by being put "on the spot."

Mr. SKIBBINS. What I mean, sir, is that I do not want to suggest that we think that there has been anything preconceived or that this thing has been privately arranged or that the Smith, Hinchman & Grylls firm is guilty of a culpable error, because that is not our point at all. We are trying to indicate that we see some additional facts and some misconceptions that can have naturally arisen in an investigation of this size and scope. And because it is maybe the No. 1 plant location in the United States in the year of our Lord 1949, we think maybe we have got some good reason for coming in and trying to talk about them and getting an adequate answer in rebuttal.

The CHAIRMAN. I just want to say when any public official is called in to explain a decision, the basis upon which he arrived at it, it is part of his job. He is not on the spot at all. He has to defend it, and that is what these people are here to do. They are not on the spot.

Mr. SKIBBINS. Well, that is fine. The point of my remarks was to remove that impression that that is what we were trying to do, because I have no familiarity with any procedure of this kind, and I have never taken part in it in my life. It is all very new to me.

On the point of coal savings, in 10 years it would be $1,725,000.

The information you are going to hear on freight rates will range between a $15,000,000 savings and a continual yearly savings in all shipments, which are heavy, that will come out from the East.

Regarding land, we are going to provide it free; and regarding housing, we are removing a ten- or fifteen-million-dollar responsibility from the Commission's shoulders, and we are going to do our best to see that everything in that community is in top shape; that the recreational facilities, which you will hear about briefly, will be adequate for the caliber of people that we know are coming there, and we are going to be proud to have them.

Regarding the point of the summary on page 118, which I think is of crucial importance, which indicates the percentages between one factor and another in the costs of this construction, I again wish to repeat the point that none of these flat statements of percentages show or indicate the percentage of error that might have crept into the statements. In any such analysis, we must always, and I think it is common practice to assume a heavy percentage of error, and I know that it is a practice in science and in analyzing propositions of this size and magnitude, in which the judgment of many persons must be pyramided in order to come to a final decision.

In the report that we submitted in the testimony this morning on contamination I would merely like to stress the fact, which maybe I did not bring out at that time, that the report of the Idaho sanitary engineer indicates a flow of contamination, of sewage contamination, beneath these lava beds which is considerably faster than has been represented in that report. If it were not faster, the contamination could not exist.

I have no question that that is important, because when we met with the Commission before we were informed that they wished to save 6 months' time. This was just one of the factors that was mentioned. They stated they wished to save 6 months' time, and they wanted to get going in a hurry, which is natural. Therefore, the housing and the electricity being wired in, and the buildings and the streets over

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there at the Navy proving ground, would be a great help to them and would mean 6 months in keeping the jump ahead on atomic development. That point was stressed to us.

But now we find out that for 1949 that point—or, at least, this is an outsider's opinion—has been pushed aside a little bit, and we are going to drill 36 wells in 1949. Now, I think that that is proof of the fact that this flow beneath those lava beds is a matter of extreme importance, and the evidence that we have submitted might indicate some doubt as to whether that flow would prove, in the last analysis, to be the kind that would insure any greater degree of prevention of contamination under existing methods of control than you could have at Fort Peck, where you have got everything in plain sight and you know how much water is going through and you know what is going through your plant and you know there is practically no rain there and you know that you are sitting up on top where you cannot have any flash floods to bother you, according to the evidence submitted this morning, and it would seem that the methods that have been developed might be sufficient.

Again, that matter is one for the experts to decide, and we are merely indicating that there is a report submitted, and it indicates some doubt of a slow percolation effect existing beneath the lava beds, but instead, in some areas at least, of a faster flow.

That summarizes everything that I have to say, sir.

The CHAIRMAN. Thank you.

STATEMENT OF VINCENT P. BROWN, ASSISTANT FREIGHT TRAFFIC MANAGER OF THE GREAT NORTHERN RAILWAY, ST. PAUL, MINN.

Mr. LOBLE. Will you state your name, please?

Mr. BROWN. My name is Vincent P. Brown.

Mr. LOBLE. Will you go ahead and give us your title and by whom you are employed, and give your statement to the committee of the matters involved in the freight situation.

Mr. BROWN. I am assistant freight traffic manager of the Great Northern Railway, assigned to supervision over rates and divisions. I have been employed in the freight traffic department of the Great Northern Railway for 23 years, and during all of that time my work has been the computation of freight rates, interpretation of tariffs, and the handling of rate matters before regulatory bodies and in the meetings of the carriers. At the present time I am in charge of the traffic department in St. Paul, of the operation department, and I have supervision over the construction of rates.

I want to say initially that I saw this report of Smith, Hinchman & Grylls yesterday for the first time, last evening, and I read the pages of it which relate to transportation.

From the standpoint of my experience as a rate man it is impossible, taking into consideration the geographical position of Glasgow on the one hand and the geographical position of Pocatello, and the relative positions of both Pocatello and Glasgow in the national freight-rate structure, to reconcile the report that the construction of facilities at Fort Peck should cost $50,000,000 more than at Pocatello.

I think I can summarize my judgment of the report as I read it, in relation to transportation, by giving you three specific points:

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I think, first, that the people that wrote the portions of the report on transportation ignored the summation of the transportation factors involved on the movement of the raw and finished commodities; and second, that in comparing points of production, they have not used the weighted average relative values of the points of production based on the conditions surrounding production; and third, that important production points have been completely ignored.

Taking structural iron and steel articles and steel pipe, for example, from Duluth, Chicago, and the big producing areas east of Chicago, Glasgow has substantially lower rates than Pocatello, which are predicated on the movement of these commodities in the construction of the Fort Peck Dam.

On the class rate structure which is set by the Interstate Commerce Commission, and which will be important in a plant of this character, in my opinion, because of the scientific instruments and machinery and articles of that kind which are not generally provided with levels of commodity rates, the rates to the Fort Peck area and Glasgow would be as much as 30 percent less than the rates to Pocatello from the areas of production of this type of machinery and this type of instrument, which is in the centers of population, Chicago and east.

To illustrate a point on whether or not all points of production were given consideration, the report mentions that asphalt is produced at Pocatello in a refinery located at Pocatello. Then it says that Glasgow would get its asphalt from Kevin, Mont., about 278 miles away, or from Cut Bank, Mont.

Now, in making that observation the most important asphalt-producing area in the West has been ignored and not mentioned, and that would be the Billings-Laurel area and the northern Wyoming area represented by Cody and Lovell, Wyo.

Then also they have overlooked——

The CHAIRMAN. How far away is that?

Mr. BROWN. They would be some 350 or 400 miles away. But they have overlooked the fact that there is no production of crude oil in the Pocatello area, and that the oils from which the asphalt is produced at Pocatello move very substantial distances. In fact, for certain years of operation of the refinery at Pocatello they have moved down from Cut Bank, Mont., which is only a few miles from Kevin. They moved from northern Wyoming, particularly the crude oil from which the asphalt is produced.

Those factors all enter into the situation, and it is not a fair comparison to indicate that the asphalt is on the ground at Pocatello, without considering all of the factors.

The CHAIRMAN. You mean they point out that there is an asphalt plant at Pocatello?

Mr. BROWN. Yes.

The CHAIRMAN. And they draw the conclusion that there would be no freight on asphalt. But you point out that after all, one of the component parts is petroleum, or oil, and they have not computed what it would cost to haul the oil to Pocatello; whereas there would be very little cost to hauling the oil to Fort Peck; is that right?

Mr. BROWN. There is none in hauling the crude oil to the Kevin refinery, because are wells are right at Kevin.

Now, in the discussion of cement——

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The CHAIRMAN. What is the price of asphalt laid down in Pocatello and what is it laid down in Fort Peck?

Mr. BROWN. I cannot tell you that, because, as I said, I saw this report last night, and I am talking from the standpoint of transportation, which is primarily my field.

The report shows that Pocatello is reasonably close to cement plants in Idaho and Utah, and it quotes an officer of the Ideal Cement Co. as indicating that he could furnish a substantial quantity of cement at Pocatello.

Now, the report makes no comment about whether that same officer of the Ideal Cement Co. could furnish cement at Glasgow, Mont., from his large cement plant at Trident, Mont., which did furnish a substantial part of the cement that went to the same area for the construction of the Fort Peck Dam.

It also underweighs, in my opinion, the ability of the large cement plants at Duluth and Steelton, Minn., and Mason City and Des Moines, Iowa, and puts them to one side in making the comparison on cement, and ignores the State mill at Rapid City, S. Dak., and other mills that shipped asphalt into the Glasgow area for the big construction there on the dam.

Now, it mentions pozzuolanic material, which cuts down the amount of cement used in a project of this kind, and indicates it is short around Pocatello. Well, as a matter of fact, the pozzuolanic material that is going out to Hungry Horse, which is considerably west of Glasgow, is coming from Chicago, and Glasgow would be in a beautiful transportation position in comparison with Pocatello on that material.

It is axiomatic, I think, in the matter of freight rates on iron and steel articles, including wire products and machinery and the other articles that will be used, that Glasgow will never be at a disadvantage with Pocatello. From the purely practical standpoint, that is true.

There have been efforts, as I understand the use of the mention of the points of production, to show California production as being an important factor at Pocatello. Now, it is true that California has production of all kinds of articles that at one time were manufactured in the East, but our own experience on that is that the majority of the plants that go to California will have their major markets up and down the Pacific coast, and we do not find them coming too far into Montana or even into eastern Idaho.

I get to the point of mentioning a lot of these articles, because my view would be, in consideration of the transportation factors on a job of this magnitude, you should weight the production around the country, because on any big job it is never centered down to one point that is right near that job. It moves from many points. So that the position of Glasgow on the one hand, and Pocatello on the other hand, should be weighted by the production of the various articles around the country nationally, and in that respect Glasgow has the advantage.

Now, there is a statement made, and I do not know what weight is given to it, that Glasgow is on the east and west route only, and that there is no north and south transportation available to it, while the inference is made that Pocatello is on a crossways of all of the railroads in the country. But nothing could be less substantial or more inaccurate there, because we have the gateway of Laurel, Mont., reaching the whole Southwest and middle parts of the United States, which

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handles the traffic right up into central Montana, and it is a main line of the Great Northern Railway.

I am not sure that there should be substantial weight to that, because I believe that after all, the way things are produced in this country today and for the foreseeable future, just as it happened in the matter of the heavy movement of war traffic, the east and west routes are the important routes, and Glasgow is on the main line on the east and west route.

I think I can say fairly that any rate man that would take the position of these two points in the national freight-rate structure will arrive at the same conclusion that I do, that there is an advantage, from the practical production standpoint, in the Glasgow area.

The CHAIRMAN. Your road does not serve Pocatello, does it?

Mr. BROWN. Not directly; no.

The CHAIRMAN. What is the direct service?

Mr. BROWN. The only line serving Pocatello is the Union Pacific.

Mr. LOBLE. Now, Mr. Brown, somewhere in this report reference is made to the fact that the plant should be within 24 hours of Chicago.

Mr. BROWN. Yes.

Mr. LOBLE. What have you to say about that?

Mr. BROWN. We are 20 hours out of Chicago on our Empire Builder train, and I do not have the exact time of the partially comparable trains over the Union Pacific, but I would say that they are at least 12 hours longer than we are, and not taking into consideration the fact that they are a branch operation.

Mr. LOBLE. Assuming a $100,000,000 freight bill, and if that would be so on a project of this size, can you roughly give us your idea of the amount of saving that would be involved in construction costs alone, on freight?

Mr. BROWN. I think from my consideration of the materials as they appear in the report there, that I can be conservative in saying that there should be a $15,000,000 saving on a $100,000,000 freight bill in the Fort Peck location.

Mr. LOBLE. That is just for construction. And in the continuation of the project as it went over the years, there would be a continual saving?

Mr. BROWN. My inclination would be to feel that the materials that will be used in the operation, in the continued operation of the plant, will come from the East, and in that case there will be a continued saving in operation.

Mr. LOBLE. And one word on the coal situation. Over at Garrison they have developed a tremendous coal vein, have they not?

Mr. BROWN. That is right.

Mr. LOBLE. So large that it is not put on the market because it would destroy the market, would it not?

Mr. BROWN. I understand that it is not being placed on the market, and I am not sure what the reasons are.

Mr. LOBLE. How far is it from that coal pile at Garrison to Fort Peck?

Mr. BROWN. I think it is probably about 250 to 300 miles over the joint route of the Soo Line and Great Northern.

Mr. LOBLE. If there is no charge for that coal, belonging to the Government, except a bookkeeping charge from one department to the other, what would be involved in costs to transport it?

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Mr. BROWN. We talked briefly about that last night, and my judgment now is, as was testified this morning, that the rate should be around $3, based on our usual measures for the type of coal shipped.

Mr. LOBLE. There is a saving of $500 a day, from what you observe in the Pocatello report, is that justified?

Mr. BROWN. I am sorry to say I did not look at the price of coal in the report, but that would be the total cost of transportation on the coal from Garrision.

Mr. LOBLE. And now a last question: Does your company maintain a department which specializes in furnishing information, down to the minutest detail, on costs involved in placing a plant and the construction of a plant, as to freight?

Mr. BROWN. We do.

Mr. LOBLE. And was your department ever contacted by this firm of engineers, or anyone else, to give you an opportunity to make that analysis of the tremendous savings in freight rates that could be accomplished?

Mr. BROWN. No, we were not.

The CHAIRMAN. What is the difference in the report? Do they claim Pocatello is cheaper than Fort Peck?

Mr. BROWN. The report makes a statement that the construction of the facilities at Fort Peck would cost $50,000,000 more than at Pocatello.

The CHAIRMAN. Do they allocate any part of that to freight rates?

Mr. BROWN. As I read the report, and as I said I had it for a short while, there is no break-down of that $50,000,000.

Senator JOHNSON. And your contention is that it is about the opposite of that?

Mr. BROWN. As far as freight rates are concerned, very definitely so.

Senator JOHNSON. Well, so far as prices of materials are concerned, you know something about that.

Mr. BROWN. I have no reason to feel that the points of production I mentioned would leave themselves at any disadvantage in prices of material. It would not be our experience in our long-time experience in handling materials for construction of plants.

The CHAIRMAN. I think that is all.

Mr. LOBLE. Our last witness is not a chamber of commerce witness. This is a witness who is going to answer the chamber of commerce statement in the report, speaking of the great facilities at Pocatello, and to point out something about this land. He will be a short witness.

The CHAIRMAN. I have a good deal of respect for chambers of commerce. I am a member of one myself. But we are usually "puffers", you know. That is the business of a chamber of commerce.

Mr. LOBLE. We have got the best puffer we could get, I will tell you that. I have pointed out to the witness that people are used to this in Washington, and I will ask him to limit himself, which I am sure he will do.

Incidentally, Senator Murray can speak as to the character of this gentleman because he knows him well.

Senator MURRAY. I know the gentleman very well.

Senator HICKENLOOPER. I understand that you will measure him up to the same level of exaggeration that exists in Washington, is that right?

Mr. LOBLE. Just about the same.

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STATEMENT OF PAUL J. CAMPBELL, REPRESENTING THE CHAMBER OF COMMERCE, GLASGOW, MONT.

Mr. CAMPBELL. My name is Paul J. Campbell, and I am a member of the special committee of the chamber of commerce who were instructed to gather data on the facilities in the Fort Peck area for this hearing.

We took the proposed plant site as outlined to us by Mr. Jarrett of the Great Northern Railway, who accompanied a representative of Smith, Hinchman & Grylls who examined the proposed site. We blocked off 21 townships comprising 437,760 acres, of which less than 5 percent, or 23,500 acres, is privately-owned, and represents 30 private ownerships. The entire block is used exclusively for grazing purposes, and no one maintains residence on this land.

We have taken a map of the county, and we have blocked this off in red lines, and there are an additional three townships, about, that border on Fort Peck Reservoir, that can be included, and which is mostly Government-owned land.

I want to submit that for the record. The Industrial Division of the Glasgow Chamber of Commerce has agreed to furnish deeds to the privately-owned land in this block to the A. E. C.

(The map referred to is filed with the Joint Committee on Atomic Energy).

Mr. CAMPBELL. We also have some signed statements of some of the owners of that land, which I want to present for the record. I will read one of them to you:

I, the undersigned, being a resident rancher in the area being considered for the use of the Atomic Energy Reactor Plant, do hereby go on record in heartily endorsing this development for this territory.

It is my understanding that I will be able to retain my grazing rights should this plant be established in this vicinity.

Those are all alike, and they are all signed by ranchers in that particular area.

(The statements are as follows:)

GLASGOW CHAMBER OF COMMERCE AND AGRICULTURE, INC.,
Glasgow, Mont., April 7, 1949.

ATOMIC ENERGY COMMISSION,
Glasgow, Mont.

DEAR SIR: I, the undersigned, being a resident rancher in the area being considered for the use of the Atomic Energy Reactor Plant, do hereby go on record in heartily endorsing this development for this territory.

It is my understanding that I will be able to retain my grazing rights should this plant be established in this vicinity.

My land, comprising 6,400 acres, is located in the following: Secs. 1 to 6, inclusive, T. 28 N., R. 37 E.; secs. 1 to 4 inclusive, T. 28 N., R. 36 E.

W. R. BILLINGSLEY.

GLASGOW CHAMBER OF COMMERCE AND AGRICULTURE, INC.,
Glasgow, Mont., April 7, 1949.

ATOMIC ENERGY COMMISSION,
Glasgow, Mont.

DEAR SIR: I, the undersigned, being a resident rancher in the area being considered for the use of the Atomic Energy Reactor Plant, do hereby go on record in heartily endorsing this development for this territory.

It is my understanding that I will be able to retain my grazing rights should this plant be established in this vicinity.

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My land, comprising 640 acres, is located in the following: Secs. 14, 15, T. 24 N, R. 38 EMM.

Yours sincerely,

GORDON M. BROWNING.

GLASGOW CHAMBER OF COMMERCE AND AGRICULTURE, INC.,
Glasgow, Mont., April 7, 1949.

ATOMIC ENERGY COMMISSION,
Glasgow, Mont.

DEAR SIR: I, the undersigned, being a resident rancher in the area being considered for the use of the Atomic Energy Reactor Plant, do hereby go on record in heartily endorsing this development for this territory.

It is my understanding that I will be able to retain my grazing rights should this plant be established in this vicinity.

My land, comprising 20,000 acres, is located in the following: All located in general area of the proposed site for the atomic energy plant.

Yours sincerely,

ETHART RANCH,
By GENE ETHART.

The CHAIRMAN. They might not want any cattle grazing around there.

Mr. CAMPBELL. It was our understanding that the grazing rights were not discontinued in the Hanford area, and that they would not be there.

This block of land lies adjacent to the Pines recreational area, where fishing unparalleled in the State can be enjoyed. Rainbow trout, wall-eyed pike, perch, and other varieties can be taken.

The Army engineers are now in the process of spending $1,000,000 on several recreational areas, providing access roads and shelter houses, trailer camps, service courts, picnic grounds, and so forth, plans and pictures of which I hereby submit in evidence.

(The information above referred to is on file with the Joint Committee on Atomic Energy.)

Mr. CAMPBELL. Hunting in the entire area is unexcelled. Black- and white-tailed deer and antelope abound, and in fact I had occasion to fly over that area the other day, and I sighted five herds of antelope.

Upland birds include pheasants, sharp-tailed grouse, sage hens, and Hungarian partridge. Wild geese and duck shooting is excellent. And I also have some pictures there, and I have one of myself and a friend of mine with 42 mallards that we took in 1939.

We went through a considerable boom there in Glasgow during the building of the Fork Peck Dam, and as a result our schools and public buildings were enlarged to meet that. Our public schools handled 1,468 pupils in 1936, which was the peak year of employment on the Fork Peck Dam, and we had somewhere near 11,000 men working out there at that time. The present additional facilities in the process of construction will accommodate approximately 500 more pupils. A parochial school now under construction will accommodate 400 pupils.

I wish to present the architect's drawing of this parochial school which is now in the process of being built. I would also like to present the architect's drawing of the proposed high school, and this is a proposed enlargement.

As to hospital facilities, we have the finest hospital facilities in eastern Montana, due to the fact that a new unit was added to our old hospital in 1934 to care for the huge increase in population brought about by the great influx of workmen and families on the Fork Peck

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project. The hospital will accommodate 80 bed patients in addition to 20 babies. We also have photos of the hospital for the information of the committee.

Mr. LOBLE. This hospital is already there?

Mr. CAMPBELL. Yes; it is already there.

We have a civic center which will accommodate 3,500 persons, with swimming pool, wading pool, and 7 acres of park and tennis courts. I have a picture of that for the committee.

We also have a brand-new post office and Federal building, with available office space for Government agencies, three stories, modern construction, constructed in 1936.

We have 13 churches, representing almost every denomination.

We have an Army airport there that was built in 1942 for the training of B–17 crews, with three runways, 8,100 feet long and 150 feet wide, with approximately 15 miles of taxi strips.

Senator HICKENLOOPER. How long were those runways?

Mr. CAMPBELL. They are 8,100 feet long.

Senator HICKENLOOPER. And what is the width of it?

Mr. CAMPBELL. One hundred and fifty feet.

The CHAIRMAN. Is that field in operating condition?

Mr. CAMPBELL. Yes; it is, sir.

The CHAIRMAN. It is not being operated now?

Mr. CAMPBELL. Just for private flying; that is all.

Also, I have maps of the recreational areas in the Fort Peck area, prepared by the Army engineers; statements from the churches; statements from the Glasgow public schools; a picture of the airport and city; and I would also like to present a brief for the record, that was prepared 2 years ago on a hearing here before the CAB in endeavoring to get air service through Glasgow.

(The documents are as follows:)

ST. RAPHAEL'S CHURCH,
Glasgow, Mont., April 9, 1949.

To Whom It May Concern:

St. Raphael's Parish at Glasgow, Mont., has a very fine parish unit—a church built about 10 years ago of concrete and steel. The church edifice itself is a beautiful mission style type of structure. It has a seating capacity of better than 400.

The new St. Raphael School is under construction at the present time and will be ready to open September 1, 1949. The school and gymnasium will be along the same lines as the church and in harmony with it. It will also be built of concrete and steel and absolutely fireproof. The building will contain eight classrooms, offices, libraries, and everything to make it modern, up-to-date, and convenient. The gymnasium contains a playing floor to meet the regulations for high-school games, showers, locker rooms, etc. It also has a permanent seating capacity of 750. On the north side of the auditorium is a stage for all entertainments and every type of program. The school has eight regulation-size classrooms and for that reason we can accommodate 400 children in an emergency.

The parish center (school and gym) are in an L shape measuring 125 by 128 feet. It is so arranged that in a very short time should an emergency or the demand arise a wing could be added for a high school or to enlarge the grade school.

The parish is rightly proud as well as the city of Glasgow and in fact northeastern Montana of the fine additional educational unit that is being added to this district.

The newspaper picture is the architects of the new school and parish center.

Sincerely,

Rev. H. B. ALTMANN, *Pastor.*

A newspaper drawing of St. Raphael's school and gym are on file with the Joint Committee on Atomic Energy.

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CORPS OF ENGINEERS, UNITED STATES ARMY,
FORT PECK DISTRICT,
Fort Peck, Mont., March 7, 1949.

RECREATION AT GLASGOW

The Missouri River, known for generations as the "Big Muddy," is blue now—behind the Port Peck Dam. Located in northeastern Montana, the sparkling waters of this huge man-made lake have backed up nearly one-fourth the distance across the third largest State in the Nation.

Fish now abound in the clear waters of what was formerly a silt-laden river, and a recreational plan has been mapped for the reservoir area by the Corps of Engineers that is changing the region from one seldom visited, even by Montanans, to an area that seems destined to become one of the West's greatest recreational developments.

The history of the old Missouri River prior to construction of the Fort Peck Dam indicates that fishing was practically nil. The turbulent muddy water had little to offer the angler insofar as casting rod or fly line were concerned. It is reasonable to believe that large quantities of various types of fish inhabited the river, but to catch them was a different story. In the headwaters only could a sportsman expect to pursue a favorite pastime of fishing with reasonable expectancy of being rewarded for his efforts. The desire of thousands to have a back-yard fishing pond in the semiarid northeastern Montana became a reality only after completion of the Fort Peck Dam.

Prior to construction of the dam the only reasonable method of catching fish in the Missouri River was by use of set lines or baited traps, the latter being most successful. Fish of various types such as catfish, carp, suckers, and ling were predominant. Occasionally a sauger or wall-eyed pike could be taken by that method. Box traps, such as used by the Indians, were also a successful means of catching fish.

Now, thousands of fishermen annually are attracted by the clear blue waters of the new inland sea and the lure of rainbow and Loch Leven trout, pike, crappie, bass, perch, catfish, sturgeon, and other varieties of fish prized by anglers.

Fish are plentiful in all parts of the 189-mile-long reservoir, and according to all indications will be more plentiful in the years to come. More than 80,000 fish were caught by sports fishermen during the 1948 season, utilizing only a fraction of the lake's immense shore line. When it is considered that the majority of these fish were taken in the vicinity of the dam itself, succeeding years should yield far greater catches in view of the vast 1,600-mile shore line with a 245,000-acre water-surface area and 16-mile maximum width at full-pool level that will have a storage capacity of 19,412,000 acre-feet of water.

Because of the lack of other large bodies of water in eastern Montana, Fort Peck Lake offers a tremendous recreational potential for the inhabitants of over a 50,000-square-mile semiarid region. These people have the same recreational desires and needs for outdoor activities usually associated with water as residents of other regions. In order to fulfill these needs and desires so as to obtain the maximum possible recreational benefits for the public, the Corps of Engineers conducted a comprehensive study to determine a feasible plan of development. Six public hearings were held by the district engineer during November 1945, at Glasgow, Malta, Havre, Lewistown, Miles City, and Circle, Mont., to find out what recreational sites and facilities the people thought should be developed. Hundreds of people attended these hearings and expressed their views. Then after additional studies preliminary plans for a proposed program were developed and a final public hearing was held by the district engineer at Fort Peck in September 1946.

Another factor which has an important bearing on the wildlife of northeastern Montana is the Fort Peck game range, established by Executive order in 1936, which entirely surrounds the reservoir. This refuge, consisting of nearly 1,000,000 acres, was set aside for preservation and propagation of wildlife and for grazing purposes under the jurisdiction of the Fish and Wildlife Service and the Grazing Service of the Department of Interior. Long-range plans of Wildlife officials include building up the deer and upland bird and migratory waterfowl populations of the game range so as to permit opening portions of the refuge to hunters. Therefore, the master recreational-development plans for the reservoir area were correlated so as not to conflict with the program of development for the game range.

The final master recreational plan adopted includes one major recreational area to be located near the west end of the dam at Fort Peck, with day, over-

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night, week end, and vacation-use facilities for sightseeing, picnicking, fishing, boating, swimming, and camping. Three secondary recreational areas are to be located at Hell Creek about 35 miles north of Jordan, Mont., on the south shore of the reservoir; at Rock Creek, 55 miles northwest of Circle, Mont., on the east bank of the Big Dry Creek arm of the reservoir; and at The Pines, which is located about 20 miles uplake from the dam on the north shore. Facilities to be installed at these secondary sites will be similar to but less extensive than those at Fort Peck. Also eight fishing camps are to be developed at various locations around the reservoir shore line, which are intended primarily for day use by residents within about a 50-mile radius of the localities.

The Fort Peck Reservoir area recreational plan in operation is to be coordinated with the other Federal and State agencies and local groups under the supervision and direction of the district engineer at Fort Peck. Basic initial improvements such as internal circulation roads, parking strips, turn-arounds, water supply, sanitation, and picnicking facilities are to be provided at Federal expense and through the cooperative efforts of State and local county agencies. With funds appropriated by the Congress to date for this purpose, work was started by the Corps of Engineers at the Fort Peck, Hell Creek, and Rock Creek sites during 1948 and will be continued this spring. Similar basic facilities are also to be installed at The Pines site during the spring and summer of 1949. Also, funds are available to initiate construction of an organized-group camp at The Pines during the current fiscal year, which is to be equipped and operated under a cooperative agreement by the Montana State Extension Service for youth organizations such as 4–H Clubs and Boy and Girl Scout groups. An agreement is also being arranged between the Corps of Engineers and the Montana State Park Service, whereby the latter agency will operate and maintain the Hell Creek and Rock Creek recreational areas.

Areas have been set aside at each of the four recreational sites in which plats of ground, about one-half acre in size, are to be made available on a lease basis to individuals who may wish to construct private summer lake shore cabins. Suitable locations have also been selected at all four sites for ultimate provision of boat docks, overnight and vacation rental cabins, stores, lunch rooms, playgrounds, and other facilities necessary for a well-equipped vacation center. Concessions will be granted private concerns or individuals to construct and operate the commercial features of the development program.

At the present time, the reservoir area is served by only two all-weather roads, both leading from United States Highway No. 2 to the town of Fort Peck by the dam site. One is a bituminous highway from Glasgow, Mont., 19 miles away, and the other is an oiled highway from Nashua, Mont., 12 miles distant. The remainder of the big reservoir is reached by dirt roads and trails. Through the efforts of the Garfield and Custer County Rod and Gun Clubs, over $5,000 was raised and spent during the past 3 years to construct 13 miles of new access road and improve the remainder of the dirt graded route to Hell Creek. Likewise, the residents of several counties in southeastern Montana have formed a group to raise funds to assist McCone County to improve the route to the Rock Creek site. The people of Valley and Roosevelt Counties have also formed an organization known as the Pines Development Association to accelerate development of roads and facilities for that recreational area.

The Montana State Fish and Game Department is also actively participating in the development program. With the cooperation of the Federal Fish and Wildlife Service and local sportsmen's groups, 825,000 trout, 50,000 salmon, and approximately 50,000 bass and many thousands of crappie and yellow perch have been planted in reservoir waters since impoundment was commenced. Natural reproductions by many of these species have increased their numbers many-fold and await the sports fishermen. An area below the dam has been turned over to the State for a game farm at which tens of thousands of Chinese ring-necked pheasants have been raised during the past several years and released for hunters in eastern Montana.

Year-round fishing is permitted in the lake and in the river below the dam subject to State laws, including regular license requirements. Most of the fishing to date has been in the vicinity of the dam, the bays, and coves adjacent to the Fort Peck recreational area, and in the river below the dam and at the mouth of the spillway. Hell Creek, Rock Creek, the Pines, Snow Creek, Box Creek, Devils Creek, and Bear Creek have also been popular fishing spots for natives of the region, who report frequent limit catches of game fish. A county-wide fish fry has become an annual event for the Garfield Rod and Gun Club at the Hell Creek site. Boy Scouts of the Yellowstone Valley Council, whose head-

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quarters are at Billings, Mont., held their summer encampment at Snow Creek during 1946 and 1947, and at Hell Creek during 1948. This organization has applied for a long-term campsite lease at Hell Creek.

Necessary boating, camping, and general safety and sanitation rules and regulations have been established by the Corps of Engineers to govern public use of the reservoir area. These include the registration and inspection of boats, operation of watercraft, construction of private boat docks and mooring facilities, construction standards for private cottages, disposal of waste and garbage, use of tent and trailer areas, and the manner in which other activities are to be carried out.

Tourists and other out-of-State visitors are coming to the reservoir area in incerasing numbers every year. Sportsmen's and civic groups of the region are enthusiastic in their support of the development plan. With its known potentialities as an aid to navigation, a preventer of floods in the Midwest, and a source of water for irrigation and power for industrial development, Fort Peck Dam is beginning to pay off in a way that was little suspected by old-time residents when it was first proposed—as the keystone of a great recreational development, worth unlimited benefits in enjoyment and untold commercial returns from tourists to the people of northeastern and central Montana.

The CHAIRMAN. How many people are there in this town?

Mr. CAMPBELL. About 4,000, sir.

I also have a statement from the Valley County Commissioners, which I will read to you:

The Board of Commissioners of Valley County will cooperate and do all in its power to build roads to the area selected for atomic research.

That is signed by the commissioners.

I also have the same sort of a statement from the city council. That relates to enlarging the water facilities and the sewer facilities there.

(The statements are as follows:)

VALLEY COUNTY,
Glasgow, Mont., April 7, 1949.

To the Atomic Commission, Washington, D. C.

GENTLEMEN: The Board of Commissioners of Valley County will cooperate and do all in its power to build roads to the area selected for atomic research.

BOARD OF COMMISSIONERS OF VALLEY COUNTY, MONT.,
By MAURICE ARNOLD, *Chairman.*
N. C. BRIGGS, *Member.*
CARL SHELLERUD, *Member.*

Attest:
[SEAL] T. P. BREKJERN, *Clerk.*

[Resolution No. 621]

A resolution putting the city of Glasgow, Mont., on record as favoring the installation of any Government work at or near Fort Peck, Mont. and an agreement by the members of the city council and the newly elected members that they will cooperate in an expansion program as far as they could under the law

Be it resolved by the Mayor and the City Council of Glasgow, Mont.:

1. That the city council feeling that it would be for the best interest of the city of Glasgow that Government works be constructed at Fort Peck, Valley County, Mont., herewith go on record as favoring such installation and herewith agree to do all in the power of the city to cooperate with the Federal Government in any expansion program which may be necessary.

2. That the city council herewith orders the city engineer to prepare exhibits to be attached to this resolution and made a part hereof showing the facilities in and around Glasgow which would be of benefit if such a program came in.

3. That copies of this resolution be sent to the proper authorities by the city clerk.

4. That this resolution was passed in the presence not only of all the members of the city council but also of the two persons who will become members starting with May 1, 1949, and by special permission all the present and future members

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voted on this resolution and it was agreed that all should sign this resolution not only so as to commit the city of Glasgow to the above program but also so as to commit themselves.

Passed by the unanimous vote of the council and approved by the mayor on April 8, 1949.

F. S. McINTYRE, *Mayor.*

Attest:

[SEAL] M. E. HODAPP, *City Clerk.*

We the undersigned being all the members and members elect of the City Council of Glasgow, Mont., herewith agree with Resolution No. 621 of the city of Glasgow, Mont., and herewith commit ourselves to the program therein set forth.

NEIL D. CAMPBELL.
O. E. MARKLE.
E. H. DAVISON.
NED C. JOHNSON.
VERN BROWN.
RUSSELL ST. CLAIR.

CITY OF GLASGOW

MONTANA

Civic center.—Size: 121 by 144 feet; playing floor, 9,030 square feet; seating capacity of bleachers, 1,500; rifle range, 1,800 square feet; room space suitable for offices 5,700 square feet, plus range; swimming pool 40 by 105 feet with wading pool; 2 double tennis courts; 7 acres of park space.

Building sites.—Approximately 400 residential and business sites within city limits. Unlimited expansion outside city limits.

City water supply system.—Two wells 112 to 120 feet deep can supply 2.88 M. G. D. against 194 foot head. Concrete reservoir on elevated ground acts as equalizer. 172 feet above business district. Approximately 9 miles cast iron pipe supply grid; 27 percent of 8 inch, 71 percent of 6 inch, and 2 percent of 4 inch pipe.

Sanitary sewer.—Approximately 9 miles. Maximum size 28 inches and minimum size 8 inches. Adequate gravel deposits for building available in immediate vicinity.

R. C. FARGO, *City Engineer.*

Mr. LOBLE. Mr. Campbell, over these months that this has been going on, has there been intensive activity on the part of the citizens of your community, as well as Montana generally?

Mr. CAMPBELL. Yes, there has.

Mr. LOBLE. And a very definite and great desire to have this project there?

Mr. CAMPBELL. That is right.

Mr. LOBLE. The reason that you have detailed these things is not only to picturize your communities, but in the report they stress the recreational and other facilities of Arco as being important, is that right?

Mr. CAMPBELL. Yes; I understand that there was some preference on the part of some of them, and they stated they would rather live in Idaho than Montana.

Mr. LOBLE. You think that is foolish, do you?

Mr. CAMPBELL. Yes; I certainly do. We went through one of the toughest winters in the West this year out there, and there never was a time that our roads were blocked or that our train service was slowed up through that territory.

Mr. LOBLE. Was it you who said that the weather was so hot in Arco that even the rivers run underground?

Mr. CAMPBELL. No, sir; I did not say that.

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Mr. LOBLE. All right.

The CHAIRMAN. When did you first hear about this project, sir?

Mr. CAMPBELL. Along about the middle of February.

The CHAIRMAN. And did you communicate with anybody in your congressional delegation at that time?

Mr. CAMPBELL. No, sir. It was stated to me that these engineers were in there, and this was a hush-hush proposition, for security reasons, and none of us made a move until Dr. Baker's statement was made in Boston and came out in the press.

The CHAIRMAN. Did you communicate with the Governor of the State or either of the Senators?

Mr. CAMPBELL. No, sir.

The CHAIRMAN. Do you know of anybody else out there who did?

Mr. CAMPBELL. In Glasgow, no, sir; I do not.

The CHAIRMAN. Or in Montana.

Mr. CAMPBELL. Well, that could have been. I did understand that the engineers contacted the Governor, from the Smith, Hinchman and Grylls firm, when they went through Montana.

The CHAIRMAN. All right.

Are there any questions?

Thank you very much, Mr. Campbell.

Mr. LOBLE. May I impose on the committee to have Mr. Flaherty, who is president of the State chamber of commerce, say a word? He came a long ways here, and I overlooked that.

The CHAIRMAN. Could he limit himself to 5 minutes?

Mr. LOBLE. I am sure that he can.

STATEMENT OF JAMES J. FLAHERTY, PRESIDENT OF THE CHAMBER OF COMMERCE OF THE STATE OF MONTANA, GREAT FALLS, MONT.

Mr. LOBLE. Mr. Flaherty, will you proceed to give your name and occupation, and your connection with the Montana Chamber of Commerce, and state anything you desire to state that will help us.

Mr. FLAHERTY. My name is James J. Flaherty. I am a wholesale merchant in Great Falls, Mont., and president of the Montana Chamber of Commerce.

Senator, our people got very much concerned on September 11 last year when Mr. Ashby, the president of the Union Pacific Railroad, said the Nation had been divided into zones, and into these zones would be fitted huge industries; and he stated, in this Associated Press dispatch, that the intermountain territory was left out.

So we became concerned over that, and did our best to try to find out how this zoning was brought about, and by whom. But it was not until along in the middle of February that we discovered it was a huge atomic-reactor plant, and it was then that our Governor got busy.

We have at Fort Peck a tremendous lake, 175 miles long.

The CHAIRMAN. Do you mind if I interrupt you just a moment? You said in September you had an announcement from whom?

Mr. FLAHERTY. There was an Associated Press dispatch given by Mr. Ashby of the Union Pacific Railroad.

The CHAIRMAN. What was he announcing?

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Mr. FLAHERTY. He was announcing that the Nation had been zoned.

The CHAIRMAN. For what purpose?

Mr. FLAHERTY. To set in industrial plants, and what kind of plants we could not ascertain, but we started to get busy then.

The CHAIRMAN. You connect that statement with the later development of the atomic energy project?

Mr. FLAHERTY. Yes, Mr. Chairman.

The CHAIRMAN. I think perhaps you are mistaken on that. I will not jump to conclusions, and Senator Johnson probably would know more about that.

Senator, was that in connection with the basing-point subject; do you suppose?

Senator JOHNSON. I doubt that; I doubt whether it would have any connection with the basing-point matter.

The CHAIRMAN. I am very much interested, because certainly in September of last year I knew nothing about the reactor program, and I would be interested to know how Mr. Ashby knew.

Mr. FLAHERTY. We have a press dispatch, Senator, copied from the Great Falls Tribune of that time, which brought about a meeting on September 18, at which Senator Murray and his secretary were present, and the city council of Great Falls, at which we had our first meeting. And then we adjourned this meeting to Butte, Mont., 2 weeks later, to take this up.

But I do not wish to bore you, Senator, or your committee, with that.

We have free land; the greatest earth dam in the world, that holds back the largest body of water in North America behind a dam. The water is there free. Huge amounts of Government power is free.

Our experts of the School of Mines in Butte tell us we could build dikes to hold back this hot water.

Now, we get into this affair and we find out that it is going down to my good friend, Glen Taylor, a former citizen of Great Falls, Mont., and the Senator and I are good friends. But we are going to try to shoot the horse out from under Glen.

Now, we find that this plant is going down into Idaho, and I have a suspicion that they are going to steal Montana power out of the State of Montana, Government power, and run it on a line down there.

Our people do not like that, Senator, and we are mad out in Montana. We are not mad at our friends here at these tables, but you know we think we have been given the run-around. We want to know, sir——

The CHAIRMAN. Now, just a minute, Mr. Flaherty. Who gave you the run-around?

Mr. FLAHERTY. We do not know. It was not this group here. But, somehow or other, somebody carried the ball around the end when we weren't looking, and that is our fault.

The CHAIRMAN. Well, now, the Montana site was investigated by these engineers; was it not?

Mr. FLAHERTY. Yes, sir.

The CHAIRMAN. And they were the engineers that were retained by the Commission to do this job?

Mr. FLAHERTY. Yes.

The CHAIRMAN. And I intend to go into their qualifications just as soon as we finish with you.

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In having made that decision, do you contend they were improperly motivated in any way in reaching that decision? You see, Mr. Flaherty, that is the question it seems to me we have to look at.

Mr. FLAHERTY. I would say that probably there were errors of judgment in the report, and therefore we asked if this case could not be reheard by the same engineers.

The CHAIRMAN. I know you meant it in good spirit, but when you say "run-around," it has a connotation of deceit and deceptiveness.

Mr. FLAHERTY. I do not intend to leave that impression.

The CHAIRMAN. I just wanted to make sure that you did not intend to accuse anybody of giving you the run-around.

Mr. FLAHERTY. Oh, no.

The CHAIRMAN. But you think that, if you had been in their place and knew both sides and had to build this plant, you would have decided to build it at Fort Peck?

Mr. FLAHERTY. I think that I would have, sir.

The CHAIRMAN. If I were the president of the Montana Chamber of Commerce, I assure you that I would have reached the same decision.

Mr. FLAHERTY. Thank you, sir.

Mr. LOBLE. I have one question. You observed, Mr. Flaherty, that the report here is dated, I think, the 26th day of March, 4 days after we were told that it already had been decided; that is, the transmittal report. Did you notice that?

Mr. FLAHERTY. Yes, sir.

Mr. LOBLE. When we came back here, the Governor came back here around March 22, I believe, and you were advised that it had already been decided?

Mr. FLAHERTY. That is correct.

The CHAIRMAN. What date is that?

Mr. LOBLE. March 22.

There was a good deal of activity all during the month of March on the part of your group and all of the citizens of Montana?

Mr. FLAHERTY. That is right.

Mr. LOBLE. And the Governor came back here and went to see the President?

Mr. FLAHERTY. That is right.

Mr. LOBLE. And on March 22, up to that time, will you state whether many letters had been received from Washington and I think those connected with the atomic energy, that Montana was under consideration?

Mr. FLAHERTY. That is correct.

Mr. LOBLE. Then, when you called at the Atomic Energy Commission after you had seen the President—you, together with the congressional delegation and the Governor, and whoever else was there, and I think Senator Ecton was there—were you advised that the matter had already been decided on the 1st of March?

Mr. FLAHERTY. I was not present at that meeting, but Senator Ecton informed me that the matter was all settled and decided—after, I believe it was, the 22d of March—it was decided on March 1.

Senator HICKENLOOPER. Where did you get the information it was decided on March 1?

Mr. LOBLE. May we ask Senator Ecton that?

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Senator ECTON. Well, Mr. Chairman, the Montana delegation met with Chairman Lilienthal, and in answer to a direct question, if the Commission had already made up their mind to locate the plant in Idaho, the answer was in the affirmative. And we were given to understand that previously, probably at least 2 weeks before, there had been an order issued by the Commission to start negotiations with the Navy Department for the site in Idaho.

So, we were given to understand that it had previously been decided; and to another direct question asked Chairman Lilienthal by myself, if there was any possibility that neither site in Idaho would be acceptable or could be acquired, then could we in Montana have a third choice or have a last chance at it, in answer to that query Mr. Lilienthal said "No." So it seemed closed.

Mr. LOBLE. That March 1 date occurred at that meeting?

Senator ECTON. I am not going to state that Mr. Lilienthal said it was March 1, but we were under the impression that around about March 1 was when it was decided by the Atomic Energy Commission.

Representative MANSFIELD. I will state for the record that it was March 1.

Senator HICKENLOOPER. Upon what basis was it stated it was March 1? Was it stated at that meeting that it was March 1?

Representative MANSFIELD. Yes; and Senator Murray and Senator Ecton and Congressman D'Ewart, Mr. Skibbins, Mr. Sullivan, and the governor and myself were there.

Senator HICKENLOOPER. And on what date was this meeting?

Representative MANSFIELD. March 22.

Senator HICKENLOOPER. You were told by whom?

Representative MANSFIELD. Chairman Lilienthal; that the decision had been arrived at on March 1 to begin negotiations with the Navy Department for the proving ground at Arco.

Senator HICKENLOOPER. Thank you.

The CHAIRMAN. Mr. Flaherty, I have had sent to me a number of clippings and editorials from the Montana papers in which various people have come in for criticism because of the selection of the site at Pocatello. The Montana congressional delegation was criticized, and Senator Murray in particular, I remember, was criticized in one editorial for not having secured this site.

It is not the conception of the chamber of commerce or the people that you have talked with and represent that this should be decided on the basis of how much political strength the delegation has or has not? That is not your conception of the way this should have been done, is it?

Mr. FLAHERTY. Oh, no, Mr. Chairman.

The CHAIRMAN. And you are content to rely on the merits of the situation?

Mr. FLAHERTY. Certainly, sir.

The CHAIRMAN. One editorial in particular was written by an ignoramus. I will not go into that. It is not the first time that has happened, either.

Mr. FLAHERTY. I can assure you that none of that came out of the offices of the Montana Chamber of Commerce; you may be assured of that.

The CHAIRMAN. I would not assume that it did, but I want to get it straight for the record that it was not the idea that you people had

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that this should be decided by any political considerations but rather on the merits of it.

Mr. FLAHERTY. On the merits of our case; yes, sir.

The CHAIRMAN. Because we are dealing with a pretty serious subject.

Mr. FLAHERTY. We realize that, sir, and our purpose is to carry it on in the highest way.

The CHAIRMAN. Thank you.

Mr. FLAHERTY. Thank you very much, gentlemen, for listening to us.

Senator ECTON. Mr. Chairman, may I ask Mr. Flaherty a question?

If you remember, Mr. Flaherty, I think that we would like to know when you first learned that the Atomic Energy Commission was considering the Fort Peck site or the Fort Peck area for this plant.

Mr. FLAHERTY. Around the 15th or 16th of February, I cannot give you the exact date, but the far side of the middle of February.

Senator ECTON. That is this February 1949?

Mr. FLAHERTY. That is right.

Senator ECTON. Were there not Army engineers in the vicinity and in Glasgow previously, last fall, for instance?

Mr. FLAHERTY. Yes, but we did not know what they were doing or what they were there for.

Senator ECTON. I see.

Mr. LOBLE. Thank you very much.

That concludes our case.

The CHAIRMAN. We will now call Mr. Warner. Mr. Warner is the next witness.

STATEMENT OF ROGER S. WARNER, JR., DIRECTOR OF ENGINEERING; AND CARLETON SHUGG, DEPUTY GENERAL MANAGER, ATOMIC ENERGY COMMISSION, WASHINGTON, D. C.

Mr. SHUGG. Mr. Chairman, may I make a statement?

The CHAIRMAN. I called Mr. Warner. He is the committee's witness, and we can hear from you later, but we are going to hear from Mr. Warner first.

What is your title, Mr. Warner?

Mr. WARNER. Director of Engineering, Atomic Energy Commission.

The CHAIRMAN. When were you appointed?

Mr. WARNER. August of 1947.

The CHAIRMAN. What was your previous experience?

Mr. WARNER. Previously I was with the Atomic Energy Commission in the Manhattan District before that, and with the Office of Scientific Research.

The CHAIRMAN. You were at Los Alamos; were you not?

Mr. WARNER. Yes, sir.

The CHAIRMAN. Where did you graduate from an engineering school?

Mr. WARNER. Harvard and MIT.

The CHAIRMAN. What year?

Mr. WARNER. 1931 at Harvard, and 1933 at MIT.

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The CHAIRMAN. For whom did you work in private enterprise before you went to work for the Government?

Mr. WARNER. B. F. Goodrich was the last.

The CHAIRMAN. When did you sever your relations with them?

Mr. WARNER. April 1942.

The CHAIRMAN. That is when you went to work for the Manhattan District?

Mr. WARNER. I went to work for the Government, sir, and I went to work for the Office of Scientific Research and Development before joining the Manhattan project.

The CHAIRMAN. As Director of Engineering, what are your duties in connection with engineering contracts, or contracts for engineering services?

Mr. WARNER. At the present time, my job is merely to make recommendations as to what the best course of action is.

The CHAIRMAN. At the present time. Well, now, at the time this engineering contract was let, what was your responsibility?

Mr. WARNER. It was the same. I selected the firm to make the report.

The CHAIRMAN. You selected the firm?

Mr. WARNER. Yes.

The CHAIRMAN. I thought that you recommended to somebody else.

Mr. WARNER. I recommended to Mr. Shugg what we wanted to do, and gave him the recommendation.

The CHAIRMAN. I see. And whom did you recommend for this particular job?

Mr. WARNER. I recommended that the firm of Smith, Hinchman & Grylls be selected.

The CHAIRMAN. Will you please tell us the process you went through in selecting this firm?

Mr. WARNER. I took the general scope of work to see what it was we wanted, and I drew out a list of engineering firms from our records, and selected those firms which we had the most information on.

The CHAIRMAN. You say you drew out a list of firms you had. Who made up that list?

Mr. WARNER. It was made up from brochures of the people that had come and called on us and presented their qualifications.

The CHAIRMAN. How many are on the list?

Mr. WARNER. The original list that I have here appears to have about 30 names.

The CHAIRMAN. May I see that list?

Mr. WARNER. Yes, sir.

The CHAIRMAN. You have a list of engineering concerns there. What is the name of this firm, again?

Mr. WARNER. Smith, Hinchman & Grylls.

The CHAIRMAN. Have they ever done any work for the Commission before this?

Mr. WARNER. No, sir.

The CHAIRMAN. This was their first job?

Mr. WARNER. Yes, sir.

The CHAIRMAN. Have they done any work in connection with other private contractors in the atomic energy program?

Mr. WARNER. Not to my knowledge, sir.

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The CHAIRMAN. When did they file their brochure with you and tell you that they wanted employment?

Mr. WARNER. I don't believe I can recall that directly. I would say that we had a series of probably three brochures from them over a period of 18 months. The latest brochure was submitted in connection with work proposed at Oak Ridge where they had recent and very direct information as to the capabilities of the firm.

The CHAIRMAN. Oh, had they done work at Oak Ridge?

Mr. WARNER. No, they were submitting a proposal for work.

Senator JOHNSON. They did do work for the War Department, though?

Mr. WARNER. Very extensive work, sir. And for du Pont Co. and for others; very extensive.

The CHAIRMAN. Did you submit a panel of two or three, or did you just submit this concern?

Mr. WARNER. I actually submitted only one. We had two in the running, and one was a Los Angeles firm, which was already involved in work at Los Alamos, and we could not use them at that time.

The CHAIRMAN. So you only submitted this Smith firm.

Mr. WARNER. Yes, sir.

The CHAIRMAN. In reality, Mr. Warner, you selected them, did you not?

Mr. WARNER. Yes, sir.

The CHAIRMAN. Was that done after conferences with the members of the different firms who presented their qualifications, or was it all done from a written record?

Mr. WARNER. I did not talk to members of many of the firms. I should say it was done from the written record and from discussions with other people in Washington and several people in the field who had had direct contact with them.

The CHAIRMAN. You see, Mr. Warner, the purpose of these questions, as far as I am concerned, is that there has been a challenge of the competency of these people. So the only thing we can do, if we are not to make this hearing completely worthless, is to indicate whether or not the engineers were chosen on a basis of care, and are competent.

What other work had these people done that convinced you they were qualified in this field?

Mr. WARNER. Certainly, Mr. Chairman, they can give you a list of what they have done. I can recall off-hand a large plant in Salt Lake City for the du Pont Co., a plant in Oregon, a plant in Denver, which I believe was for the Chemical Warfare Service. Well, I won't say who it was for. I do remember a plant in Denver.

Senator JOHNSON. It was the ordnance plant.

Mr. WARNER. The ordnance plant in Denver. And they have demonstrated competence in very complex chemical processing. They are the foremost in the field of modern distillery practice. They have done a tremendous amount of work for the automobile industry, and they have a national reputation.

The CHAIRMAN. In private industry, Mr. Warner, is it customary for one individual to make a choice of an engineering concern on a project like this?

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Mr. WARNER. I would say, sir, for the purposes of getting a report, extending the information that one can't get oneself, it is very proper to leave it to the judgment of a few people.

The CHAIRMAN. Getting back to the basis upon which you made your choice, did I understand you to say you did not have any conversations with the engineers representing the various concerns?

Mr. WARNER. I did not have any conversations. I discussed it entirely within the Commission's facilities.

The CHAIRMAN. I see. And it was based upon your discussions with other employees of the Commission, plus their paper record, their brochures, and their record of accomplishment, that you decided this issue.

Mr. WARNER. Yes, sir.

The CHAIRMAN. Would you have extended to a construction or an engineering firm of Smith, Jones, & Brown, an opportunity to be heard in this matter if they had come down to the Commission?

Mr. WARNER. Oh, certainly, sir. But for the purposes of getting a report, extending our information, I did not feel it was the same as selecting an engineering firm in order to carry out, execute a major project.

The CHAIRMAN. There is quite a difference between those two concerns?

Mr. WARNER. An enormous difference, sir.

The CHAIRMAN. The fee that has been paid to this concern is $36,000 to reimburse them for their expenses and a $3,000 fee. Am I correct about that?

Mr. WARNER. Yes, sir. We allocated $50,000 for the purposes of the report, and it looks as if they spent about $36,000 to date.

The CHAIRMAN. And they have only charged $3,000?

Mr. WARNER. Yes, sir.

The CHAIRMAN. Does the size of that fee excite any apprehension in you that perhaps they think they are "in" as the engineers on the project as a whole?

Before you answer that, here is the report. Of course, you can pile up a Sears, Roebuck catalog as thick as this. It does not necessarily mean, by its very thickness that it is worth anything. According to the Montana people, it is not worth very much. But certainly it ought to be worth more than $3,000, if it is worth anything.

There was no agreemnt made that they were to have the engineering contract on the project as a whole, was there?

Mr. WARNER. Absolutely not. No agreement whatsoever. They may have had that in their minds, and you can ask them that directly; but there was a distinct understanding that this was for the purpose of gathering information, and it did not either prejudice or influence any subsequent work.

The CHAIRMAN. Whom did you talk with at Oak Ridge that gave them a recommendation?

Mr. WARNER. Mr. R. W. Cook, deputy manager.

The CHAIRMAN. What was his connection with them, if any? Do you know?

Mr. WARNER. None, as far as I know. He was involved in looking over the qualifications of many firms for additional work that was to be considered at Oak Ridge.

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The CHAIRMAN. From whom else did you get a recommendation?

Mr. WARNER. I talked to Mr. L. E. Johnston in Schenectady but not about this particular firm. I also talked to the Construction Engineering Division in Washington.

The CHAIRMAN. Mr. L. E. Johnston is the gentleman who has been designated by the Commission to go out and take charge of this?

Mr. WARNER. Yes, sir.

The CHAIRMAN. You say you talked with him, but not about this firm.

Mr. WARNER. Not about this firm.

The CHAIRMAN. About whom did you talk with him? You see, I asked you who had recommended this firm to you, and you said R. W. Cook, deputy manager, and then you said L. E. Johnston. If you did not talk with him about this firm, I am not interested.

Mr. WARNER. Yes. Well, I don't believe that I discussed this firm with Mr. Johnston.

The CHAIRMAN. Did you discuss any other firm with him?

Mr. WARNER. I believe I did, and I can not remember which it was. I know that I called him up.

The CHAIRMAN. With whom else did you talk?

Mr. WARNER. I talked with the Construction Engineering Division in Washington.

The CHAIRMAN. That is rather an impersonal thing. With whom did you talk?

Mr. WARNER. Mr. Maher and Mr. Warren.

The CHAIRMAN. Mr. Maher and Mr. Warren. Are they both here?

Mr. WARNER. Not in the room, sir.

The CHAIRMAN. I mean they are here in Washington?

Mr. WARNER. Yes, sir.

The CHAIRMAN. What was Mr. Maher's and Mr. Warren's recommendations?

Mr. WARNER. They had a number of engineering firms of specific qualifications, suitable for specific purposes, and also engineering firms of national reputation, of which Smith, Hinchman & Grylls was one. And we agreed that Smith, Hinchman & Grylls were competent and available to do this particular job.

The CHAIRMAN. You say "we." Was it Mr. Maher, Mr. Warren, and yourself?

Mr. WARNER. Yes, sir.

The CHAIRMAN. Are they your assistants?

Mr. WARNER. No, sir; they are in another division.

The CHAIRMAN. Did they recommend anybody else as suitable for the undertaking?

Mr. WARNER. There were some of these people on the list that you looked at, that were recommended by them for specific engineering problems.

The CHAIRMAN. Did they give you a memorandum on this subject?

Mr. WARNER. No, sir.

The CHAIRMAN. Is there anything in writing in the Commission's files relative to the recommendations of anybody else except this firm?

Mr. WARNER. I will have to look, sir. I am not sure.

The CHAIRMAN. I would like to see it.

Mr. Maher and Mr. Warren did recommend some other engineering firms to you?

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Mr. WARNER. Yes, sir.

The CHAIRMAN. Whom did they recommend?

Mr. WARNER. From memory, sir; there were several firms on this list that were recommended.

The CHAIRMAN. Half a dozen?

Mr. WARNER. In the order of four to six; yes, sir.

The CHAIRMAN. So that Maher and Warren recommended from four to six firms.

Mr. WARNER. Yes, sir.

The CHAIRMAN. You eliminated, of course, all but one and passed on one to Mr. Shugg.

Mr. WARNER. Yes, sir.

The CHAIRMAN. And that is this firm here.

Mr. WARNER. Yes, sir.

The CHAIRMAN. You did that on the basis of recommendations from Mr. Cooke, the deputy manager in Oak Ridge. Is that correct?

Mr. WARNER. I checked with Mr. Cooke to find out if he had any information that could add to what we were considering doing. So that that is essentially correct.

The CHAIRMAN. You see, you had to eliminate at least three and maybe five others that were recommended to you by Mr. Maher and Mr. Warren. You came out with this Smith firm.

Mr. WARNER. That was based on the job that we had to do when we defined the job as clearly as we could.

The CHAIRMAN. What qualifications did you see in the Smith firm that were not in the other five, or three, depending upon whether they recommended four or six, as to which you are not sure? What qualification did you see in this firm that were not present in the others that you turned down?

Mr. WARNER. As I remember it, the others did not have a national reputation in this field, although it was very good in specific fields of engineering.

The CHAIRMAN. You mean you only listed one engineering firm in the country, out of the 30 that have a national reputation?

Mr. WARNER. Out of the four or six that we are talking about, submitted by Mr. Warren and Mr. Maher.

The CHAIRMAN. But you start with a list of 25 or 30.

Mr. WARNER. Yes, sir.

The CHAIRMAN. Presumably Mr. Maher and Mr. Warren, if they knew their business, picked the best six out of that list.

Mr. WARNER. They submitted a separate list, which is now incorporated into this number.

The CHAIRMAN. All right.

Of that list you eliminated the rest on the basis that the ones they named for you did not have a national reputation?

Mr. WARNER. Yes, sir.

The CHAIRMAN. Is it your responsibility to maintain a list of engineering concerns down there?

Mr. WARNER. I have had that responsibility of maintaining lists, and I had a list that was quite complete. At this particular time the list was being shared with Mr. Maher and myself.

The CHAIRMAN. What I cannot understand is that if it is your duty to have a list of competent engineers on tap from which to select, in this case after you got through with the list that you yourself made up, you

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ended up with one concern of national reputation, and rejected all the others on the ground that they did not have it. Is that the situation?

Mr. WARNER. Well, it is more than a national reputation. We wanted somebody who was competent and available and could do a month's work.

The CHAIRMAN. And were the other five that you rejected in the situation where they were not available?

Mr. WARNER. They were not available, or they did not have cleared personnel so that we could start the work at once. This was virtually set up for about a month's work.

The CHAIRMAN. You say they did not have cleared personnel?

Mr. WARNER. Yes, sir.

The CHAIRMAN. Were these the only people that had cleared personnel on the engineering list?

Mr. WARNER. No; there were others that had cleared personnel. Stone and Webster had cleared personnel. They were not in a position to put top management on this problem, and it needs top management to write a review.

The CHAIRMAN. Did you ask Stone & Webster about their availability?

Mr. WARNER. I personally did not ask Stone & Webster, but I learned about them. I can't remember exactly how I got that information.

The CHAIRMAN. In writing?

Mr. WARNER. No, sir; orally.

The CHAIRMAN. From whom would you naturally get it in the usual course of business?

Mr. WARNER. Actually, I believe I talked to Mr. Rowe, Hartley Rowe, whose connection is that of being on the General Advisory Board.

The CHAIRMAN. Hartley Rowe? Who is he?

Mr. WARNER. He is vice president of the United Fruit Co., of Boston,, and closely connected with Stone & Webster.

The CHAIRMAN. And he informed you that they were not available?

Mr. WARNER. My memory is that he informed me that he did not think they were interested, and could put the proper people to work on it.

The CHAIRMAN. I see.

Who else was unavailable?

Mr. WARNER. I am not able to answer that, because I just do not recall. That was about the extent of the preparation for choosing this firm and making the report.

The CHAIRMAN. In other words, the unavailability of 5 of the concerns on the list.

You have read over the report that has been made by this concern?

Mr. WARNER. Yes, sir.

The CHAIRMAN. Are you in agreement with it?

Mr. WARNER. Certainly, in its entirety.

The CHAIRMAN. You have heard the testimony of Mr. Skibbins, who was here today?

Mr. WARNER. Yes, sir.

The CHAIRMAN. Have you any comment to make upon his testimony regarding the electric situation?

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Mr. WARNER. I would rather turn that over to members of the firm of Smith, Hinchman & Grylls.

The CHAIRMAN. You have no independent judgment on that?

Mr. WARNER. No, sir, except that we have independent information from the Department of the Interior and the Corps of Engineers which was furnished to this firm.

The CHAIRMAN. I see.

Are there any other questions?

Senator HICKENLOOPER. I have some.

The CHAIRMAN. Senator Hickenlooper.

Senator HICKENLOOPER. Mr. Warner, when did this survey start?

Mr. WARNER. On the 5th of January.

Senator HICKENLOOPER. Last January?

Mr. WARNER. This year, 1949.

Senator HICKENLOOPER. I believe you said this firm of engineers had no previous experience with the Atomic Energy Commission.

Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. It was winter in the area at that time, was it not?

Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. And they completed their survey of both of these areas and the tracts of land involved and the soil components and the transportation and all the things that went into this report, for both sides, within that 30 days? Is that correct?

Mr. WARNER. All of the factual information was complete within the 30 days. It was smoothed over, and the factual information was improved, subsequently.

Senator HICKENLOOPER. How many sites did they survey in that 30-day period?

Mr. WARNER. Just the two. This was a comparative survey between Pocatello and the Fort Peck area.

Senator HICKENLOOPER. You had surveyed other sites, had you not?

Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. Who surveyed those sites?

Mr. WARNER. There were seventy-odd, all told. Some 23 of them were surveyed entirely by Government people, the Corps of Engineers, the Department of Interior, and ourselves, with some help from the Weather Bureau and others.

Senator HICKENLOOPER. Had they been surveyed with the specific purpose of locating a reactor farm, or for other purposes, and were the data merely reviewed?

Mr. WARNER. No, sir. This information was collected for this purpose alone.

Senator HICKENLOOPER. How long did that collection of information take?

Mr. WARNER. It started as paper studies in a rather desultory way, about the last of April 1948.

Senator HICKENLOOPER. And went on during last summer?

Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. You mentioned Mr. L. E. Johnston, whom I believe is the manager of operations at Schenectady.

Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. Did Mr. Johnston direct a survey of the Fort Peck site?

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Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. Did he make a report to the Commission on that?

Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. Where is that report?

Mr. WARNER. It is here in the room, sir, if you would like to see it.

Senator HICKENLOOPER. Has it ever been made public, or turned over?

Mr. WARNER. No, sir. It is classified "secret," because it contains information on the Hanford operation, which was used as a comparison, or to get some handles to see what it was that we might need.

Senator HICKENLOOPER. Who classified it?

Mr. WARNER. Mr. Johnston.

Senator HICKENLOOPER. Within the Commission?

Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. It was classified in the Commission. Is it not possible to declassify those particular items of reference and information and comparison, and to release that report on the Fort Peck site as far as its physical attributes and qualifications are concerned?

Mr. WARNER. I think it is possible to delete the information and then declassify it. I have not actually spotted myself the points which cause it to be classified "secret."

Senator HICKENLOOPER. Is it true, Mr. Warner, that the Commission decided last fall that the Fort Peck site was the site to be developed, and that they expected to have the land all purchased and the site taken care of by January 1st, which was prior to the time that this engineering survey was started?

Mr. WARNER. Let me see. The survey was under way last year, where Fort Peck was the principal site. That was the standard by which we were comparing all other sites.

As far as taking the land by the first of January, I do not remember anything of that sort in the schedule.

Senator HICKENLOOPER. Mr. Chairman, if I may transpose this, may I ask Mr. Shugg that question?

Mr. SHUGG. That was my own personal goal, yes, sir; and I was in charge of that phase of the work.

Senator HICKENLOOPER. And you told me, I believe, Mr. Shugg, did you not, in a conference in my office late last fall, that that was the goal: to acquire the land by the 1st of January, so that construction could start shortly after the first of the year?

Mr. SHUGG. Yes, sir; so that construction could start when the winter weather was through.

Senator HICKENLOOPER. And that was the tentative decision, at least, made last fall as a result of the surveys that had been conducted with reference to the Fort Peck site?

Mr. SHUGG. The Fort Peck site, sir, was in the lead until, to the best of my memory, the middle of October. If you would like, I will tell you as simply as I can what went on from there.

Senator HICKENLOOPER. I do not want to be misunderstood in this. I have no interest in the Fort Peck site over the Pocatello site, or the Pocatello site over the Fort Peck site. I am only interested in what is the best site to serve the purposes of the Atomic Energy Com-

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mission. As long as we are having a hearing on this matter, I do believe that the entire procedure and the determinations should be examined into; and then I think it is only fair to say why the decision was changed from, I will not say a firm decision, necessarily, but I will say that I understood late last fall that Fort Peck was the determined site, and that land acquisition was going forward. I know that I was cautioned, or asked if I would say nothing about it, for fear land values might jump in the area, in anticipation of Government purchases.

I think it is only fair, in justice to the whole proceeding, that we examine into this to see why, after December, let us say, an engineering firm was employed to survey the Fort Peck site in the middle of the winter and survey the Pocatello site in the middle of the winter, and the decision resulted in the selection of the Pocatello site.

I again assure you I am holding no brief for either site, but I do not want, so far as my personal views are concerned, to have the people from Montana feel that they have been abused, nor do I want the people from Idaho to feel that they have been abused. I think in fairness to a project of a half billion dollars and more, and its permanent location, and the importance of this thing, it might be well to lay the whole bag of bones out here and look at them.

Mr. SHUGG. You wish me to speak to that, sir?

Senator HICKENLOOPER. I did not mean, Mr. Chairman, to change your witnesses.

The CHAIRMAN. Perhaps before Mr. Shugg starts in, I have another question or two of Mr. Warner.

Senator HICKENLOOPER. If Mr. Shugg can be prepared to discuss that matter when his turn comes, that is perfectly all right.

The CHAIRMAN. Surely.

Mr. Warner, you stated that this Smith firm had never done any work for the Commission.

Mr. WARNER. Yes, sir.

The CHAIRMAN. Of any kind or character.

Mr. WARNER. Yes.

The CHAIRMAN. You told us that one of the considerations that led you to select them was that they had cleared personnel. How did they come to have cleared personnel if they have never done any work for the Commission?

Mr. WARNER. Possibly they can answer the question, sir, better than I can. My feeling is that they probably needed cleared people in order to submit specific proposals on work that was going on at Oak Ridge, or coming up at Oak Ridge.

The CHAIRMAN. You say they had been cleared. Of course, they had to be investigated by the Federal Bureau of Investigation, under the act.

Mr. WARNER. Oh, yes.

The CHAIRMAN. Were they the only ones in this list that had cleared personnel?

Mr. WARNER. No, sir. I am sure there were others that had cleared personnel. I know that Holmes & Narver had cleared personnel.

The CHAIRMAN. Were they one of the six?

Mr. WARNER. They were one of the last two.

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The CHAIRMAN. By the way, will you give us the names of the concerns that were handed to you by Mr. Maher and Mr. Warren?

Mr. WARNER. I don't have those with me now, sir. I will turn them in to you.

The CHAIRMAN. You mean there was no memorandum from any one of them?

Mr. WARNER. I have no memoranda here, sir.

The CHAIRMAN. Nothing to indicate, in the file, whom they recommended?

Mr. WARNER. Nothing in this file, sir.

The CHAIRMAN. Would it be in any other file?

Mr. WARNER. I am sure that we can probably find something.

The CHAIRMAN. Is that not a little unusual? Would they not normally write a memorandum to you if they were giving you a list of firms, telling you why they had selected the ones they had selected?

Mr. WARNER. Yes, sir. They would have given me a list of firms, and I feel sure that we have notes on them. This file here was significant stuff that we might use at this hearing; it is not the original file in which all of the contract information is kept.

The CHAIRMAN. Is there someone here who could telephone down for that file?

Mr. WARNER. I could see about that.

The CHAIRMAN. Suppose you do that.

Senator HICKENLOOPER. I had another question or two that I would like to ask Mr. Warner, if I may.

Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. Mr. Warner, when was what we might refer to as the firm or final decision made to locate the plant at Pocatello? What date? Do you recall?

Mr. WARNER. The paper that we presented to the Commission was presented on the 18th of February. Corrections were made, and the paper that I am looking at, which is the official copy, is dated March 1.

Senator HICKENLOOPER. The paper was submitted to the Commission on what date in February?

Mr. WARNER. It was submitted to the Commission on the 18th of February.

Senator HICKENLOOPER. And you say the paper you are looking at is dated March 1. That is the description of the paper that you are looking at.

Mr. WARNER. This is a staff paper, "Site Selection for the Reactor Testing Station."

Senator HICKENLOOPER. In the original paper to the Commission on the 18th of February, and in the staff paper, or in either of them, did you make a final recommendation as to the Pocatello site?

Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. And you did firmly recommend the Pocatello site at the time?

Mr. WARNER. Recommended that negotiations be undertaken with the Navy for the acquisition of the site.

Senator HICKENLOOPER. Does that recommendation mean, or carry with it, your recommendation or the staff recommendation for the Pocatello site as the accepted and agreed-upon site?

Mr. WARNER. It certainly does. It doesn't necessary say that we can get it.

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Senator HICKENLOOPER. That is right. But that was your recommendation to the Commission for its decision?

Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. That was on the 18th of February.

When did the survey start?

Mr. WARNER. The survey started on the 6th of January. The interim report was submitted, I believe, the 5th of February.

Senator HICKENLOOPER. The 5th of February. You submitted your first paper to the Commission on the 18th of February, and your final corrected or revised paper on the 1st of March?

Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. When did you receive the final report of the engineering firm that had conducted this survey?

Mr. WARNER. The final report come in approximately the 4th of April.

Senator HICKENLOOPER. So that you made your recommendations, your preliminary recommendations, carrying a firm commitment for Pocatello, on the 18th of February, and your corrected recommendations on the 1st of March, and you did not get the final report of the engineering survey until some time in April. Is that correct?

Mr. WARNER. That is correct, sir. But the conclusions were not to be changed from the interim report; merely a refinement of the information.

The factual information and the conclusions, as you will see in the scope of the work for the contract, were to be complete in the interim report.

Senator HICKENLOOPER. The interim report which you received early in February is the one which you are referring to?

Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. Had they at that time completed the field work?

Mr. WARNER. They had completed all the field work comparing Fort Peck with Pocatello.

Senator HICKENLOOPER. Was that substantiated by data in the various lines of investigation?

Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. And it was based upon that interim report that you made your conclusions in the paper of February 18 and the paper of March 1. Is that correct?

Mr. WARNER. Yes, sir.

Senator HICKENLOOPER. I am concerned, in these questions, again, I say, not that I have any preference, not the least preference, between the two sites; but I am somewhat concerned with the speed with which reverse English was put on what I thought was a firm decision in the fall. I am still a little hazy on the reasons for it.

Can you give me the general purport of Mr. Johnston's survey of the Fort Peck site, which is still classified as secret, or restricted in some way, without revealing the technical comparisons between operations necessary in the reactor farm, and the Hanford operations?

I mean, what did he generally conclude about the Fort Peck site?

Mr. WARNER. He generally concluded that it was possible to do the job and put the station at that site, as he understood it.

Senator HICKENLOOPER. Then he did not examine the Pocatello site.

Mr. WARNER. No, sir.

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Senator HICKENLOOPER. So you have no comparison of personnel within your own staff, that is, such as Mr. Johnston, the manager of operations at Schenectady, would be, as between these two points. The comparison of Pocatello and Fort Peck rests entirely upon the survey conducted by the engineering firm.

Mr. WARNER. And our own people, that is, the engineering staff in the Atomic Energy Commission, and people from the Corps of Engineers, who made specific reports to us, and people from the Department of Interior, Bureau of Reclamation, USGS, all of whom made specific reports on both areas.

Senator HICKENLOOPER. Yes.

Do you know—I do not assume, necessarily, that you do unless you happen to have been told about it, but do you know the date upon which the Commission took final action, based upon your papers, this paper of February 18 and the paper of March 1? Do you know when the Commission made its final decision?

Mr. WARNER. I have always assumed it was the date of this final paper. But I might be able to correct that.

Senator HICKENLOOPER. I say that you, not being specifically on the Commission, might not have that information, but I thought perhaps you might have learned it.

Mr. WARNER. I think that the Commission, on February 8, generally approved the recommendations, and asked for refinements, changes in the paper.

Senator HICKENLOOPER. I think probably we could get that more accurately from the Commission itself.

Senator ECTON. Mr. Chairman, could I interpose a question?

The CHAIRMAN. Yes, Senator.

Senator ECTON. If the final decision was made on March 1, Mr. Warner, will you explain to the committee why all of us were not informed of it? Why was it that it was not made public at that time?

Mr. WARNER. As far as I am concerned, we had made a recommendation. The Commission had agreed to support that recommendation. And we were then in the process of negotiation, to see whether in fact we could get it, or whether the Navy could relinquish its interest.

Senator ECTON. You will recall that the first time that the Montana delegation visited with you, we were given to understand that the final determination had not yet been made. Later we found out that it had already been decided on March 1.

Mr. WARNER. I think, sir, it is a question of what the meaning of what the decision was. From my point of view the decision meant that this was what we wanted. The question was: Could we get it?

Senator ECTON. You had two sites in Idaho. I was given to understand that if you could not get one you knew that you could get the other one. So evidently you knew from the very beginning that you were going to locate it in Idaho regardless.

I think that is the think that has caused all of this confusion and commotion. The Governor of Montana, for instance, made a special trip down here, on the assumption that it had not been yet decided. Then we found out later that it had already been decided, before he ever got down here.

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Mr. WARNER. I think that there is certainly confusion as to what the meaning of that decision was in the minds of people outside the Commission.

Senator ECTON. I thought it perhaps might clear up the situation if you could explain to the committee for the record why there was that discrepancy there. I think it would clear up the situation considerably, Mr. Warner, if you would explain that.

Mr. WARNER. Certainly I feel that the Commission stated what it wanted on March 1. Then, we entered into a period of negotiation to see whether it was humanly possible to get what we wanted.

When Mr. Lilienthal met with you he said, "This is the site we want, and we will go up to the President, if it is necessary, to get it."

It was a period of negotiation where we did not know what we could acquire.

Senator ECTON. We understood from Mr. Lilienthal that the Commission knew that they could get one or the other site in Idaho; that if they could not get one, they knew they would be able to get the other one.

Mr. WARNER. The Navy site, of course, is the one that we have been pointing to.

Senator ECTON. Yes, and in the event that the Navy site could not be acquired, then you were going to go ahead and get the other site in Idaho.

Mr. WARNER. My feeling is that we were pointing so hard at the Navy site that there was an alternate site in the background but the decision that we would take it was certainly not clear to me. It was an alternate site, there. But we had not gathered as much information on it as we gathered on the Navy site, largely because there was still snow on the ground, and the data on the Navy site had already been collected.

The Navy Department had already collected data on their site, and we knew what we were buying there.

Senator MURRAY. Mr. Warner, like Senator Ecton, I am very confused about your failure to let us know the situation when we were conferring with you on the first occasion. You did not give us any information whatever about what you had agreed to do, what you were going to do. You did not tell us that you had already selected Pocatello.

Mr. WARNER. My instructions, sir, were to begin negotiations with the Navy. That is the way the resolution reads.

Senator MURRAY. Then at that time you knew that you were not going to carry on any studies with reference to the Montana site, and that as far as Montana was concerned, it was out, and that you were confining yourself to an attempt to close up on the site at Pocatello.

Mr. WARNER. Certainly I wanted very much to get the Navy site. But beginning negotiations, and not having the foggiest notion of whether I could acquire the Navy site, meant that I wanted to make sure that the final contestants kept in the running until we knew what the problem was.

Senator ECTON. In other words, you did not want to tip your hand before you had to. Was that it?

Mr. WARNER. Sir, it was the beginning of a negotiation.

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Senator ECTON. Well, I think in fairness to you, Mr. Warner, it should be stated whether or not under the rules or the regulations you were bound to maintain a certain sort of secrecy respecting it until final negotiations were completed.

Mr. WARNER. Certainly no secrecy under the Atomic Energy Act; I would say just normal prudence.

The CHAIRMAN. Senator Johnson?

Senator JOHNSON. Mr. Warner, will you read the last name on that page of the engineering firms, please?

Mr. WARNER. Leroy Harza.

Senator JOHNSON. He is a Fort Peck man?

Mr. WARNER. He handled some work for Fort Peck, and also for K–25.

Senator JOHNSON. Where is he located?

Mr. WARNER. I thought it was Chicago. It does not say so here.

Senator JOHNSON. He is not a resident, then——

Mr. WARNER. It says "Canadian," but I thought it was Chicago, because he has done work for the Manhattan District, and must be reached in this country.

Senator JOHNSON. He is not a resident of Montana?

Mr. WARNER. No, sir; not as far as I know.

The CHAIRMAN. What does the Canadian designation mean?

Mr. WARNER. I am not sure that I know, sir. I knew that he had done work for Fort Peck and for Oak Ridge.

The CHAIRMAN. How many concerns on that list have actually done work for the Commission before, or its predecessor, the Manhattan District?

Mr. WARNER. Nine.

The CHAIRMAN. That is all I have to ask at this time from Mr. Warner. Unless someone else has something, we will ask Mr. Shugg to start in on Senator Hickenlooper's questions.

Mr. SHUGG. At the time, Senator Hickenlooper, that you asked me as to progress, Fort Peck did stand at the top of the list, as far as our staff work went. It had not reached Commission level. No land-acquisition work had started. We had, of course, communicated with the Interior Department as to the availability of land.

Part of the reason for a change is that a site had to be tied to what was going to be put on the site. We were not after a site just for the site itself, but on account of the reactors which needed to be built.

Fort Peck, I think I could also say, although I was not here at that time, was at the top of the list for a new site in June of 1948, and all during the summer, because the most intensive site survey that had been made up to then was with reference to a very large facility, of an entirely different character, which would involve water supply and power of a comparable magnitude to that in Hanford. The possibility of the need of such a production site evaporated during the summer, and I think it is perfectly true that some of our premises as to the amount of water and the amount of power carried some hang-over from the previous site survey.

As to the reactors that were to be built on this site, for which we were supposed to be acquiring it, that program itself only hardened up during the fall. It was on November 10 that the Commission formally approved the reactor program which the staff had long been working on.

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That put into focus for the first time the size and type and the probable dates when these first reactors would be built on a reactor site. The two went hand in hand, the firming up of our plans and pictures for the reactors themselves, and the type of site which they would require. So that I cannot give you dates here. This was all staff work. It was continuous work all fall. I feel that I know that there was a good deal of it, because I was personally behind it in the hopes still that we could get a decision by the first of the year.

Senator HICKENLOOPER. May I interrupt and say that you were not alone in the Commission on that? We have other statements from members of the Commission that the decision would be made by the first of the year, and work would be begun, preliminary work. So you did not stand alone in that statement, in that understanding, I am sure. I got my understanding from you, and from others that were in a position of authority there.

Mr. SHUGG. Then, one important date that I would like to stand out is November 10, 1948, which is the date on which the Commission approved the reactor program. And although we had been trying to anticipate it, and had been anticipating it, it was when a decision was made as to what reactors would be pursued, that one could speak with more certainty as to what kind of a place they needed to have it built on.

Senator HICKENLOOPER. May I just clear up one point there, to make it clear?

The staff and the General Manager's office, which you represent, are unable to go forward with actual construction or development until a policy decision has been made by the Commission; that is, until a program has been O. K.'d by the Commission.

Mr. SHUGG. That is right, sir. And we did not have our own work, in order to give the Commission, until November 10, something that they were able to come down and affirm.

At the same time, in our staff work on these sites, that we were coming down on the importance of power, that is, the amount of power and the amount of water, since these units to be built in this reactor site are test units only—they are a very small fraction of the capacity of the production reactors which had previously been contemplated—at the same time there was a growing realization in the staff that we could not dodge the contamination question. We have all kinds of resolutions on the subject, and we have plans and programs. But I can vouch for the fact that there was a definite uneasiness in our staff due to the fact that regardless of what plans or programs we had, or how good we were, nevertheless that site was at the headwaters of the Missouri and Mississippi Valley. That thinking is what led to a further search to make sure that there was not a more self-contained site.

These things all run along currently. And also, at the same time, we had not satisfied some of our questioners in our own staff that we had exhausted all the existing Government sites, or national military establishments; that is, whether there were any sites that were laid up.

Pocatello did very definitely come up late in the fall. I would not want to say here exactly what date, but it was very late, sir.

The CHAIRMAN. Who came up with it first? Do you remember?

Mr. SHUGG. Mr. Warner was the first one that mentioned it to me, and I believe that it led out most specifically from the offering of Klamath Falls, Oreg., as a natural sink. We felt that that was too

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much emphasis on this question of a natural sink. But simultaneously we were going down the list of National Military Establishment bases that may have been partially set up and closed. Also, sir, I have to be responsive to your question, and I have to tell you that there were a large number of our people in our staff who were never content that Fort Peck would get us the people that we needed without our having to pay a heavy price for them.

Now, this program will go no faster than the people that we can get to make it run; and those are not just the ordinary run of construction workers.

The pace of this program will depend upon our being able to attract special skills of the sort that we have had a rather extensive experience with at Richland and Los Alamos.

Senator HICKENLOOPER. So that one important factor, as I understand, in the Pocatello site, is that you came to the conclusion that Pocatello area would be a more attractive place for people to live, and work.

Mr. SHUGG. Yes, sir. Now, we can't quote figures on that, and we have not attempted to, and we have not tried to say that people can't live anywhere. But we have had a very expensive experience so far in the Commission in regard to trying to attract and maintain people in such isolated spots as we already have. It does not solve the thing for us to lay our recreation grounds for them, or to determine what their pleasures will be. They seem to have a way of determining their own.

The CHAIRMAN. Before you go any further, Mr. Shugg:

Mr. Warner, it is always difficult, I suppose, to reach back into your own mind and say where an idea originated. Do you remember how you happened to come across Pocatello first?

Mr. WARNER. Very early in the game, possibly in June, in making a survey of the entire country, we picked out areas that might be suitable if we got more information on them.

The CHAIRMAN. Where were you born?

Mr. WARNER. In Boston.

The CHAIRMAN. You have no connection at all with Pocatello?

Mr. WARNER. No, sir.

The CHAIRMAN. I think it is just as well to have that stated for the record, inasmuch as it has been said that you were the first one to point out this area. I did not think you were from out there, from your accent.

Go ahead, Mr. Shugg.

Mr. SHUGG. Pocatello, as I have said, did come up for serious consideration late in the fall. We worked as fast as we could in the staff to get as full information on that site as we had obtained earilier in the fall on the other top sites. And those contacts included, in the Department of the Interior, the same bureaus; there are seven of them all together. It included the same Corps of Engineers and the Weather Bureau geologists whom we had been using in the 2 or 3 months previously on the other sites.

As to the pressure, I will definitely say that I exerted pressure upon Mr. Warner to work fast in getting a professional engineer to make a comparison of the two top sites. I do not know all the questions I asked him, but I asked him if this was a firm that he knew of, that he

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had some confidence in. Were they reputable? Was a top man in that firm willing to put some personal attention to this? And did they have some cleared men, so that they could at least start off.

And, of course, we have the problem all the time. We have lists of firms in the country, formally or informally, but we have the problem of how much to load up those that we do have experience with.

We have done that in the case of a couple that I could mention. They never say no, but even though they are a big firm, they cannot give the thing we ask them the same attention, at such times, as a small firm or a newcomer.

Many firms, just because they have not done a job, apparently are not able to get work with us, because they have not done work with the Manhattan District.

The CHAIRMAN. There should be no monopoly.

Mr. SHUGG. I take full responsibility for Mr. Warner's selection. He gave me all the details, but I signed that contract. I wanted to have a top man in that company to give it his personal attention. I also wanted to know if they would use other consultants. And I personally suggested the firm of Alvord, Burdick & Howson, a Chicago water consultant who helped us at Hanford. That was the only experience I ever had with them.

They helped us to save money out there, and they kept us from making some possibly poor moves. So this firm was willing to use them and I probably dictated the use myself, because of my own work in the past with Alvord, Burdick & Howson. They also consented to a fair schedule, and the schedule was a good deal of our own doing. They did get their interim report in on February 7. That report in size was almost as fat as the present one, but it was not as fancy in some of the charts and the details.

The CHAIRMAN. What do you think of the price of $3,000 for that job?

Mr. SHUGG. I think it was a bargain, sir, and that they hoped to establish one good job with us in the hopes of getting more. Different firms have used different means of trying to sell their services to us. I believe that is legitimate, if they wish to demonstrate to us——

The CHAIRMAN. Well, I do not know. I have my doubts about that.

Mr. SHUGG. I may have encouraged the low fee myself.

The CHAIRMAN. I would not want you to pay an exorbitant one. I am no expert on engineering fees, and I guess lawyers may be guilty at some times of the same practice. I do not know. But it does seem to me that $3,000 is disproportionate for the amount of work involved here.

Mr. SHUGG. Of course, that is over and above every single expense, overhead and everything.

The CHAIRMAN. Yes; even at that, that would seem to me to be a very low fee.

You see, it is hard to suit Senators. If it was too much, they would be kicking at you, and now that it is too little they are criticizing you.

Mr. SHUGG. Yes, sir.

Their interim report was submitted on February 5. To check my memory, I asked one of their members here during the noon hour, and

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I believe the only substantial change that he could think of in fact was in regard to the foundation qualities of the ground at Fort Peck. They changed that, he said. They had removed some of the poor comments submitted by some of the consultants on the Fort Peck foundation bearing qualities.

That report has a great many figures in it. Those figures in some cases could not be better than the promises which we gave to the engineer. It should be definitely stated by us, sir, that as to the amount of power, the amount of water, the amount of construction, those are order-of-magnitude estimates on our own part, because we have not yet designed the units that are going here. We had a choice to be very optimistic and say that we would only need a little bit of everything, and therefore be easily satisfied. But we have usually guessed short. We have never guessed long enough.

We set down figures there which were the largest guesses we could think that this thing might run into, because then it would be with those maximum assumptions that we would proceed. We felt it important to know whether some of these economical factors would overbalance some of the other judgment factors. If we knew what we were going to build there in detail, if we knew from where the materials were coming and who were going to be our contractors and suppliers, we would give better premises and assumptions to our engineers, and we would expect to give figures that would be much more reliable.

The CHAIRMAN. Mr. Shugg, that is all very interesting, but the fact remains, as Senator Hickenlooper has said, that you had a discussion with him in November, some time after the first of the month, and you informed him that it looked as though it was going to be at Fort Peck.

What happened after that, that definitely decided you to bring in an outside engineering firm?

Mr. SHUGG. I am not sure of the date that I informed him, sir. It was perhaps about the 1st of November.

The CHAIRMAN. We Senators can place things one way or another, as coming just before or just after——

Senator HICKENLOOPER. This was "just after." I was not back here until "just after."

The CHAIRMAN. You see, that is a little difficult, is it not? You tell Senator Hickenlooper it looks like Fort Peck and it is all decided. And that was done without benefit of outside engineers. It was done on the basis of your own staff work. Then, in the middle of winter, with 14 feet of snow on the ground, these people are brought in, in January, and they come back with a report that says: Pocatello. Just fill us in on that.

Mr. SHUGG. I meant my earlier reply to Senator Hickenlooper to indicate that as the reactor jobs themselves turn up—and I gave you the date of December 10 on that—we had some idea on what we were going to build there. That scaled down our water and power needs. At the same time they ran these other simultaneous inquiries. One, as I tried to make clear, was that this site, Fort Peck, was still at the headwaters of the Missouri-Mississippi Valley.

Another thing we had to satisfy ourselves of in staff work was that we had not gone down and substantially justified eliminating every one of the laid-up national military establishments.

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The CHAIRMAN. You scaled down power needs. Were they scaled down measurably? Was that a big consideration?

Mr. SHUGG. I think a fair answer to that is that it was. I am not aware of the early survey assumptions that were used in May and June of 1948, when they had in mind a production plant comparable to one of our present big production plants. But this scaled it down, sir, because these units are a very small fraction of the capacity of those other units.

Then, in our own staff discussion—and this was not a constant thing; as I said, we had never been able to satisfy a substantial portion of our staff that we could not find a place where the problem of people would find a more satisfactory answer.

Senator MURRAY. Right there, Mr. Chairman, may I ask a question?

How did you arrive at the conclusion that Fort Peck would not be a satisfactory place and that you would have any difficulty in having people come there or having work people come there to help construct the project?

Mr. SHUGG. I can give you no facts or figures, sir. Mr. Johnston, who had worked on the Fort Peck Dam and who comes from either South Dakota or Montana—he married a Montana girl—was very enthusiastic about Fort Peck, and the report which Senator Hickenlooper spoke of was Mr. Johnston's personal effort, as a competent engineer, to help to substantiate Fort Peck. At that time, Pocatello was not on the list, and we had not asked Mr. Johnston, and he did not know of it. He did not know of the possibility of its availability.

I realize just how difficult it is to try to prove why we believe that the people problem will, over the course of 5, 10, or 15 years, sir, be more easy for us to handle at Pocatello than at Fort Peck. Fort Peck is isolated. I have not been there, but we have had personal experience with these isolated towns.

Senator MURRAY. You heard the testimony here today, with the witnesses describing the locality there and the recreational features that abound there and the wildlife and the climatic conditions, which compare very favorably with the other parts of the country; in fact, compare more favorably with Pocatello.

Senator HICKENLOOPER. Maybe it is not the right kind of "wildlife," Senator.

Senator MURRAY. Well, we can't offer the night-life of the big cities, but we have pictures here that were introduced this afternoon, showing what an attractive location this would be. We have everything that could be desired and I cannot understand how you would arrive at a conclusion, without ever having been there yourself or that you were going to have any difficulty about inducing people to settle in such a reasonably attractive area.

Mr. SHUGG. We had, as I say, the real experience of our own in handling somewhat similar isolated towns; and those people, not the construction people but the people whom we need to man the actual key operations of such a test site as this, were what we had in mind. It is semilaboratory work. It is not a production job. We have a good deal of contact with those people. They are on so many of our seminars and boards and are working at one contractor's or another's installation. And they are very vocal as to their preferences. They know our isolated towns.

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Senator MURRAY. In Montana we have found all through our history, there, that people who have lived in the very highest developed sections of the country, men of excellent education and refinement and high qualifications of every kind, have come to Montana. Teddy Roosevelt came out there in the early days, and some very distinguished eastern people came out there, established ranches and lived in those areas in apparent comfort. Many rich and cultured people from the East come out there and buy ranches and go into the cattle business and seem to be entirely satisfied in that western atmosphere out there and that healthful section of the country. So I cannot understand why you should arrive at the conclusion merely based on the fact that you have had difficulties in some other sections of the country.

Mr. SHUGG. I cannot prove it either, Senator, but I did that in an effort to clear away some of the apparent lack of firmness in this, feeling that we should put in everything that counted; and this matter of people was one of those things which did count.

The CHAIRMAN. Mr. Warner, I do not want to pursue this thing too far, but I am going to ask you again: Just why did you pick this firm? I want to have that clearly in the record. Why did you pick this outfit?

Mr. WARNER. This firm had a national reputation.

The CHAIRMAN. That is one.

Mr. WARNER. It had top-notch people, qualified in this sort of a problem.

The CHAIRMAN. Who told you that?

Mr. WARNER. That was gathered by talking with people here in Washington, with Cook and with others.

The CHAIRMAN. Who?

Mr. WARNER. Mr. Cook, at Oak Ridge, R. W. Cook, whom I mentioned before.

The CHAIRMAN. And "others?" Who are the others?

Mr. WARNER. Well, sir, I can't tell you who the others were. There is a certain element of judgment. I had known of them for some time, although I had never had any connections with them. I had known of their work, the job they had been doing.

The CHAIRMAN. Did you know any of them personally?

Mr. WARNER. No, sir.

The CHAIRMAN. You say "Cook and others," but you cannot remember who the others were at the moment. That may occur to you later. What was the third qualification? They had cleared people?

Mr. WARNER. They had cleared people that were available.

The CHAIRMAN. That were not on any other work, people who were available?

Any other reason that occurs to you?

Mr. WARNER. Those are the ones that occur to me at the moment.

The CHAIRMAN. Those are the ones that occur to you. Does this method of selection conform with the contract manual of the AEC?

Mr. WARNER. The contract manual was issued subsequently. Let me see. For purposes of getting a report, I think there is certain latitude there. As to selection, there is no particular regulation that would cover that, for purposes of getting a report.

The CHAIRMAN. But there is on other contracts with the Commission?

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Mr. WARNER. For contracts involving the execution of work, the design of construction and costs.

The CHAIRMAN. There are definite regulations. But there are no regulations in the Commission as to the instruction of engineering personnel. Am I to understand that?

Mr. WARNER. For the selection of people to do a job of making a report. I am sure that for the selection of an engineering firm for design the answer would be "Yes."

The CHAIRMAN. But simply to get a report, "No."

Mr. WARNER. Simply to get a report of short duration, "No."

The CHAIRMAN. How many other firms have you hired to do this kind of a job or a comparable job?

Mr. WARNER. Well, I have had a hand in a good many, I suppose, in the last 5 years.

The CHAIRMAN. But there are no regulations that govern it?

Mr. WARNER. For doing a report?

The CHAIRMAN. Yes.

Mr. WARNER. No, sir; not that I am aware of.

The CHAIRMAN. How much money does the Commission spend a year in getting reports?

Mr. WARNER. I would have to ask Mr. Shugg. I am not aware. We have a limited number of consultants.

The CHAIRMAN. A limited number of consultants. Well, do these classify as consultants? This list here?

Mr. WARNER. They would be used in a consulting capacity, certainly. That is the service that we wanted.

The CHAIRMAN. Well, now, let me see if I understand. We have a contract manual that is approved by the Commission, which lays down the way that you should go about selecting contractors. That is true, is it not? You do have such a manual?

Mr. WARNER. Yes, sir.

The CHAIRMAN. In this case, the regulations were not followed? Is that true? In the selection of this firm?

Mr. WARNER. This manual was not in effect at the time, sir, I believe.

The CHAIRMAN. Let us see. When was this manual adopted?

Mr. WARNER. It has been under discussion for about a year, but I am not sure.

Senator JOHNSON. Did it replace a previous manual?

Mr. WARNER. No, sir.

Senator JOHNSON. It is something entirely new?

Mr. WARNER. Yes, sir.

The CHAIRMAN. In other words, this is a new procedure?

Mr. WARNER. Yes, sir.

The CHAIRMAN. What is your best judgment as to when it was adopted?

Mr. WARNER. My thinking would be that it would be in January, offhand. I know it has been under intense discussion during the autumn, various parts of it.

The CHAIRMAN. In your experience with the Commission, is it in accordance with the usual policy for one man to do the selecting of the firm to do a job of this kind, whose recommendation is going to carry the expenditure of half a billion dollars?

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Mr. WARNER. Sir, this is the report where the fee was $3,000. The total amount of money allocated for this report was $50,000.

The CHAIRMAN. I do not quarrel with that, but my point is this: Their report evidently determined in the minds of the Commission the expenditure of half a billion dollars. It apparently determined the location. I just want to get all these facts in the record. This is not by way of criticism. I want to find out the truth. The point that I want to make is this: Is it the usual thing in the Commission for a contract to be made with a firm to accomplish work which is so fraught with consequences as was this contract? Is that the habit, the custom, of the Commission, or is it not?

Mr. WARNER. The Commission certainly makes the decision. As far as the selection of a report goes, or the selection of people to write a report to provide information——

The CHAIRMAN. That rested solely with you?

Mr. WARNER. Yes, sir.

The CHAIRMAN. Have you been alone in selecting other contractors for the Commission?

Mr. WARNER. As to any contracts involving sizable sums, of course, they go through many hands and contractual boards, and most of them are handled in the field.

The CHAIRMAN. So this, to that extent at least, is an exception, then, is it not?

Mr. WARNER. Certainly.

The CHAIRMAN. And you would justify the exception on the ground that it was a peculiar job that was being done; namely, a research job rather than a design job.

Mr. WARNER. I would say it was a fact-finding job and the selection of consultants for a fact-finding job takes on a different connotation than selecting contractors to design something and build something.

The CHAIRMAN. I must say that I cannot agree with the conclusion, because it presupposes that it is of less importance to have a careful review of the qualifications of a fact-finding contractor than of a design contractor. While the design contractor is certainly very important, the fact-finding contractor was extremely important in this case, because it apparently has determined the Commission's judgment as to where half a billion dollars are going to be spent.

Mr. WARNER. Mr. Chairman, if there had been time, the Engineering Division of the Atomic Energy Commission would have made this study. It is a question of bodies able to pick up information.

The CHAIRMAN. Thank you.

Any further questions?

Senator ECTON. Mr. Chairman, I would like to ask Mr. Shugg if his Division is aware of the fact that at Fort Peck Dam there are many engineers who live there the year-round, and that at one time they had 11,000 men working there at Fort Peck.

Mr. SHUGG. Yes, sir. I am aware of that. Because I talked that over with Johnston, who is one of our men, who was on the Fort Peck job. And Johnston's opinion and our own, sir, is that Fort Peck is a good site. It is, in fact, the second best site in the whole country, to the best of our knowledge today. But it was our considered opinion that Pocatello was simply better. The job can be done at Fort Peck, sir.

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Senator ECTON. Then, for recreational facilities, it is only about 8 hours from Glacier National Park. Do you also realize that the Fort Peck area is only 8 hours from Glacier National Park?

Mr. SHUGG. Yes, sir. I do not wish to overemphasize this "people" business, but it had not been mentioned before, and I wanted to be fully responsive to the question as to the factors involved and the reason for this switch from Fort Peck to Pocatello; or what is apparently a switch, because we have very frankly said that Fort Peck was at the top of the list, until some time in the middle of the fall. I mentioned that factor of where people prefer to live simply to fully answer the question as to what all of the things were that led to this change.

I think, sir, that there is not any question, if we had to have two sites and they had to be far distant, one from another, that everything we have today would tell us that the other site would be Fort Peck. But we have to make a decision on one site, and in the Commission's judgment, although Fort Peck is a good site, we do believe that Pocatello is a preferred site. In many of these factors, both are stated as good; power is good in both places, and water is good in both places. But, as I said, we do believe that Pocatello is a preferred site.

Senator ECTON. Have you ever had the privilege of visiting that Fort Peck area. You, yourself?

Mr. SHUGG. No, sir; but I have been at Billings, and I like Billings a great deal, and I like the western country.

Senator ECTON. We appreciate that you got into Montana as far as Billings. But it seems to some of us that you engineers who determine these sites should visit them. We just feel that you should visit them and inspect the possible sites personally, so that you at least know what these engineers are talking about when they make these surveys and recommendations. I am very sorry to learn that you have not gone out there and investigated that Fort Peck area.

Mr. SHUGG. That is true, sir. I have not been there. And I imagine also that I would have to spend some little time there, in the event that my first quick landing was under conditions which every site has, at one time or another, conditions that were not good. I could not prejudge on the basis of one visit. It would depend on the time of year and other things.

I have flown through Miles City, for example, many times, because I made 26 flights across Montana in the calendar year 1948, all of them by Northwest. I have not been in Pocatello either.

But I do not want to leave the impression that this is a personal preference. We had to be careful, here, to keep some of these things from getting an unbalanced judgment as to the over-all. There are 14 factors, all together.

Senator ECTON. I think all of us appreciate the fact that you and the other members of this Atomic Energy Commission have taken into consideration and evaluated all of the necessary qualities in a site. That is the way I want to look at it. But we were discussing this one principal thing, and I did want to call this very pertinent fact to your attention.

Mr. SHUGG. And I do not wish to overemphasize that matter of people. It is the only thing that had not come out on the table here, and it is tucked into some of the fancier words like "social factor,"

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and so forth, in our 14 criteria. But I think that is one of the things which help in the final decision, in our judgment, aside from any pages of dollar figures and facts. It is one of the things, sir, that did influence our judgment in selecting Pocatello as the better of the two; with full recognition that Fort Peck is a good site, the second best that we could find in the whole country.

Senator ECTON. Well, we appreciate that; and if we are left out this time, we hope that if there is any necessity for future development you certainly will not overlook that area in the future.

The CHAIRMAN. Thank you very much, gentlemen.

Mr. SHUGG. Mr. Chairman, may I introduce for the record about four pages which very briefly summarize the much longer testimony which we gave before the joint committee in executive session?

The CHAIRMAN. Certainly.

Mr. SHUGG. As the committee will recall, the subject of the selection of a site for the reactor-testing station was considered on March 14 with the joint committee in executive session. I propose to review here the steps taken and the considerations involved in this matter, in a way that this can be done in a public hearing.

Before outlining the steps which the Commission has taken in selecting a site for the reactor-testing station, I would like to review briefly the significance and purpose of this project.

Nuclear reactors are the key to the future promise of atomic energy both for military and peaceful purposes. These uses include the production of fissionable material, development of power, propulsion of naval vessels and aircraft, and production of radio isotopes for use in research and in medical therapy and industrial processes.

In order to insure the preeminent position of this Nation in the field of atomic energy, it is essential that new types of reactors, differing from those presently existing, be developed and put in operation as soon as possible. The Atomic Energy Commission has concluded that in order to press forward with the development of new reactors in a manner compatible with public safety and welfare, acquisition and development of a new remote testing site is necessary.

The test station will be essentially a field facility for testing and proving for the entire national reactor-development program, while research and development activities continue at existing installations. Participating in this project will be Commission research units working on reactors, armed forces agencies concerned with military utilization of reactors, and industrial groups working on problems for the Commission in this field.

During the first half of 1948, the importance of the development of a separate reactor-testing station became increasingly apparent to representatives of the Commission, advisory groups, and others engaged in the reactor-development program. All known factors related to the subject were considered by staff members in the light of the objectives of such a program, and a general statement of criteria for the site of such a station were developed. These criteria, which were later refined and developed in the course of further study, provided in general that the site for a reactor-testing station should:

1. Be removed from heavily populated and industrialized areas.

2. Be near enough to existing communities so that construction and operating personnel can be accommodated.

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3. Contain at least 400,000 acres of land, preferably of submarginal value for farming and ranching and not suitable for future agricultural, mining, or other development.

4. Be near a readily accessible reliable water source that would supply continuously a minimum of 50 cubic feet per second.

5. Have geological, hydrological, and meteorological conditions facilitating the handling of radioactive wastes under normal and emergency operations.

6. Be near an electric power source that will be capable of supplying a minimum of 70,000 kilowatts at a reasonable cost.

7. Be amenable to acquisition and development with utmost economy.

The Commission representatives then undertook an extensive study of possible sites throughout the entire United States for a testing station which might meet the requirements of the program. In the course of this study, representatives of the Corps of Engineers, the United States Air Forces, the United States Army, and the Commission staff made systematic studies and surveys to produce, for initial consideration, areas of the country deemed to be generally eligible. These surveys, which included Federal and State parks, military installations, other appropriated or marginal publicly owned lands and privately owned lands, revealed 70-odd areas throughout the United States that met the general specifications at least in part. Sites in 34 different States were examined. Among these areas, 23 warranted detailed studies. These further studies showed that seven areas had desirable characteristics. The Commission staff, therefore, with the assistance of the Department of the Interior, the Department of Commerce, and the National Military Establishment made additional detailed studies of these seven areas.

Following an analysis of these studies, the Commission on January 6, 1949, employed the firm of Smith, Hinchman, & Grylls, Inc., Detroit, Mich., to conduct a comparative evaluation of the two of the seven areas having the greatest potentialities, Fort Peck, Mont., and Arco, Idaho. This survey was designed to develop additional detailed information and to present a systematic comparison of the advantages and disadvantages of the two sites. In this final analysis, the Commission staff and the engineering firm used the reports of specialists in geology, hydrology, meteorology, and sociology and further refined the requirements. These refined requirements included considerations of isolation, security, climate, geology, nature of soil and drainage, water supply, potential availability of manpower, availability, accessibility and cost of materials and supplies, nearby town and community developments, construction and operation costs, availability and cost of electric power, and fuel sources.

The engineering firm concluded, after studying the characteristics of the two areas and measuring these characteristics against the refined requirements, that the Arco area was equal to the Fort Peck area in 2 respects, superior in 11, and inferior only in 1 respect.

The findings of Smith, Hinchman & Grylls were incorporated first into an interim report dated February 9, 1949, and later into a final report of some 150 pages with an appendix of 120 pages more, containing consultant reports. This report presents a detailed analysis with charts, maps, and tables of the extent to which the two sites met the requirements listed above.

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The Atomic Energy Commission then reviewed the findings of its staff, and the information obtained from the firm of Smith, Hinchman & Grylls, Inc., the Department of the Interior, the Department of Commerce, and the National Military Establishment. It gave additional consideration to certain special requirements, particularly those relating to hazards, security, and drainage. The Commission then reached the decision that the Arco area was the preferred site and authorized its staff to initiate discussions for its acquisition. These discussions are now under way.

It is the view of the Commission that Pocatello is clearly the site best suited to the requirements of its reactor-development program. The Snake River plains area, the selected site for the reactor-testing station, northeast of Arco, is adequately removed from heavily populated and industrialized areas, and at the same time is close enough to communities where construction and operating personnel can be accommodated. Furthermore, it has a desirable combination of geological and hydrological features which will facilitate the handling of radioactive waste under normal and abnormal conditions. Despite the great care and precautionary measures which will be taken at this station, as at other Commission installations where safety records have been outstanding, the Commission must always consider the possibility that harmful materials might be released over an area of several square miles by major accidents such as fires or spills.

At the Arco site there is no surface drainage directly to the Snake River, which is 40 miles away, and, furthermore, the porous soils would absorb the harmful materials. Percolation through the water table to the Snake River will take many years. During this interval the materials would lose a great deal of their radioactivity by the natural process of radioactive decay.

In connection with the other requirements, the selected site is underlain by an extensive water table through which flows between 1,000 and 2,000 cubic feet per second of good water. This area also has thousands of acres of level land on which can be readily developed necessary facilities for the testing station and, in addition, possesses an adequate and economical electric-power source, as well as good access roads and railroads.

Senator TAYLOR. Mr. Chairman?

The CHAIRMAN. Yes?

Senator TAYLOR. I do not want to take up your time. I know how busy you are and how busy all of us are.

I simply would like to ask, in case the question of reopening this matter, with the possibility of relocating the plant, should be seriously considered in the wisdom of the committee, if Idaho will be given an opportunity to testify at some future time.

The CHAIRMAN. All right, Senator.

Senator HICKENLOOPER. That is very understandable, Mr. Chairman, and I am for it. Because if anybody dares say any of these States is better than Iowa, I want to be able to take the stand and testify. And I will also suggest that that goes for Connecticut.

Senator MILLER. Just for the sake of the record, I would like to be heard for about 2½ or 3 minutes on the testimony that has been adduced here.

The CHAIRMAN. Surely, Senator.

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Senator HICKENLOOPER. I wonder, Senator, if you would withhold that for just a moment. I want to ask Mr. Shugg one question, if I may, and then I will be through, if you will indulge me for just a second, here.

I believe you stated, Mr. Shugg, in an executive session of the Joint Committee, inasmuch as you are putting in a summary of your testimony in the executive session, on March 14, referring to this engineering survey, as follows:

"We had a preliminary report from them"—

That would be the engineers?

Mr. SHUGG. Yes, sir.

Senator HICKENLOOPER. "On the 5th of February, and the final report is not in yet." That was on March 14, 1949. I believe that appears in the testimony.

I may say parenthetically that at that meeting I was under the impression that the final decision had not necessarily been made. I cannot say that it was actually said. I do not mean that, and I may have gained an erroneous impression.

Mr. SHUGG. I certainly would not want to give that impression, sir.

Senator HICKENLOOPER. I do not want to say that that was said, but I was laboring under the impression that the Pocatello site had not been finally determined upon, because the engineering reports had not been finally in at that time.

Mr. SHUGG. All the basic data were in that February 5 report. It simply wasn't prettied up.

Senator HICKENLOOPER. Yes. I see. Excuse me, Senator.

STATEMENT OF HON. BERT H. MILLER, A UNITED STATES SENATOR FROM THE STATE OF IDAHO

Senator MILLER. My name is Bert H. Miller, Jr., Senator from Idaho, with office in the Senate Office Building.

I preface my remarks with the observation that I have known this particular section of the State of Idaho for a period of time dating from before many of the witnesses, or some of the witnesses, were born, and which would be not less than 55 years.

Back in 1916, I made somewhat of an investigation as to sinking wells, because at that time I had more or less of a personal ambition to go into the cow business and figured that that would be a mighty favorable section to do that, assuming that water could be obtained through wells in the place in which I desired to locate.

It will be remembered that Idaho is a land-grant State. I am further familiar with the tracts, for the simple reason that I think it was in 1942 that the Aeronautical Corps sought a tract of land 30 miles wide by 60 miles long in that vicinity as a bombing area. And I, as attorney general, at that time was a member of the Constitutional Land Board, and, as you recall, there was ceded to the State as the result of statehood two sections of land in each township.

I recall distinctly the suits being brought by the United States of America against so many thousand acres of land, to condemn it because of the price that existed for these school lands, which was under the constitution of the State, $10 per acre.

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The Government took the position that they could not afford to pay that much and if, through condemnation proceedings, they could get it reduced, that is what they would attempt to do. We would have been perfectly willing to have deeded to the Government; but the Government, of course, would not accept it on that basis, because of the price fixed by the constitution and the invalidity of a deed conveying the land for a less amount than what the constitution provided for.

As I understand, the atomic energy set-up here wants about 400,000 acres. The amount that in my recollection the Navy has there at the present time is probably slightly in excess of 200,000 acres. I am not certain as to that. The amount is immaterial.

Mr. SHUGG. It is 173,000.

Senator MILLER. I see. I am guessing at this, from about 10 years back.

I particularly wanted to make mention of the testimony of the first witness here. I do not recall what his name was, because I did not get it. I wanted to mention his testimony and his fear that the Idaho Power Co. may go broke because of furnishing Idaho Electric Power beyond what they can really afford to provide. Well, we need have no fears about that situation.

I might say that mention has been made of a statement of some health officer. I understand the witness to say that he was from Idaho. If so, I never heard tell of him around the statehouse, and I only left there last December, after a constant sojourn there for 16 years. His statement that the engineers testified or reported that there was sewage contamination in the water there is absolutely foreign to anything that could possibly be true with respect to the location of this atomic energy plant. In the first place, there is no habitation near there, Mr. Chairman, save and except a remote ranch within a distance of probably 100 miles, coming in that direction. And the only town of any consequence would be in Senator Murray's State, the town of Dillon. So you have some idea as to that distance.

There is the little town of Dubois probably 50 miles away.

Senator MURRAY. How about Idaho Falls?

Senator MILLER. Well, Idaho Falls does not come within that area.

The natural trend or fall of the land is toward the southwest. Arco and that section of the country is at a lower altitude than is the place where there would be any atomic energy buildings or plant. So it could not come from that source.

Another thing is this, to show the inconsistency of such a thing:

Those thousand springs that were mentioned have been there since the first traffic ever came out into Idaho, and that was a long time ago. They have never varied, even though there are wonderful irrigation activities now in the vicinity and in the same general trend as those springs. They have not increased or diminished.

The Idaho Power Co. has one of its plants there; power from a thousand springs. There is room for ever so much activity there, in that respect, if they ever wanted to do that.

I will say this: The biggest private fish hatchery in the Northwest is situated under these springs. The Government of the United States has the largest Government hatchery in the Northwest, situated under these springs.

It is only reasonable to conclude that it would make an active test as to what the situation is there with respect to the purity of that water.

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We speak about Pocatello. If what I read in the press is true, Pocatello is the second largest town in the State of Idaho. At a closer distance to where the construction will be is Idaho Falls, the third largest town in the State of Idaho. Both of these towns are in the eastern or southeastern area of the Snake River, which passes down through there; so it could not be said that there is any contamination over in that vicinty, from that point.

I mentioned the fact that these thousand springs have not varied from time to time. That is due to the fact that they are undoubtedly deep springs. Nobody knows how deep they are. It is true that it is in the vicinity of a Government park, the Craters of the Moon, but that does not spoil it for any particular reason.

Those are some of the observations that I wanted to make in connection with those particular areas: That there absolutely can be no contaminated water in the vicinity of the wells that would be dug, if any are dug, for this atomic energy location or plant; and that you will find a situation there that is freer from objectionable conditions than would be found in most any other spot that I know of, either in the State of Idaho or of Montana, because I know quite a lot about Montana, too. I was a buckaroo up there, Senator Murray, right in the country you are talking about.

Of course, my opinion on it has nothing to do with the intrinsic value, but I cannot see how it would be possible for anyone who has made an investigation of those two sites, considering climatic conditions, freedom from wind, freedom from this, that, and the other, to move this plant to the vicinity of Fort Peck, when they have such a place as they have out there, near the Big Butte in the Arco country.

The CHAIRMAN. Thank you very much, Senator.

Now, gentlemen, it is 5:20. We must get back to our offices. We will continue this hearing at the call of the Chair, probably the first of next week. We will examine the engineers, among others.

Senator MURRAY. Mr. Chairman, the witnesses that are here from Montana may be excused?

The CHAIRMAN. Oh, yes, surely.

I want to say to the witnesses from Montana before they go that the committee thanks them for coming and for stating their views on this matter. They have been stated, within the limitations that we laid down at the start.

I particularly want to thank Mr. Mansfield and the Governor for their presentations, and also the other members of the delegation for their presence and interest here.

I will say to Senator Taylor and Senator Miller that they will have an opportunity at a future hearing to offer any testimony they wish to offer.

I would urge you not to go out and get chamber of commerce witnesses; not, again, that I have anything against them, but, after all, you are standing on a decision that has been made by the Commission. Suppose you reserve that until after we have heard from the engineers. Then we will be glad to talk to you gentlemen again about it.

I am not going to string this out. We cannot do that. We cannot meet against this week, either. We will notify you when we will have another meeting. It will probably be Monday or Tuesday. We will endeavor to let you know tomorrow.

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In the meantime, I would suggest, Governor, that you go home. I do not mean by that to be discourteous. I mean, by that, that I certainly would not want you to wait, because I certainly think you have done all you can.

Governor BONNER. Thank you, Mr. Chairman and gentlemen of the committee, for your kindness in holding this meeting. I must get back to Montana, because of pressing State duties there.

But, in leaving, I just want to say this to the chairman of the committee: I believe the evidence that was adduced here today well shows why Montana was upset about this proposition. As was testified to here by the several witnesses today, I did make a trip to Washington some time ago. I met the President of the United States and others that were interested in this project. That was in March. And nothing was said about this matter being decided.

We then went down to meet with Mr. Lilienthal and Mr. Warner. After at least one-half hour's discussion of the merits and demerits of the two sides then, and then only, did Mr. Lilienthal state that it had already been decided on March 1.

In making that statement, Mr. Chairman and members of the committee, I want to say this, without reservation: that we pressed Mr. Lilienthal as to why no one knew about this prior to this date, and Mr. Lilienthal replied that it was due to the fact that the Navy did not want it released.

Therefore, I was startled today to hear Mr. Warner testify that the only reason it was not released was due to the fact that it was used as a bargaining point. That is what has had us upset in Montana all the time, trying to put our finger on something.

Sometimes we think it is here, and then we find it is over here.

Another observation I would like to make to the chairman and to the committee before I leave is that, while Fort Peck was the No. 1 site up into the fall, then this firm of engineers was appointed and within a month they came back, in the dead of winter, and the Commission decided the matter within that time; that is, in February.

I think, too, in fairness to everyone, that I should cite the fact that Mr. Warner testified that this was a fact-finding engineering firm; and yet our great railroad out there, the Great Northern, had a representative testify here today that the Great Northern was not even asked about freight rates.

Those are some of the questions that are in the minds of the Montana people.

We, as I stated this morning, are not against Idaho in any sense of the word, but we feel, in Montana, that we are entitled to it on its merits. And when we mention Idaho, with due respect to the Senators, we are like Idaho; we have a great "reach" for our State, this great State of ours. And it is admitted by the Commission that, in order that this plant go ahead in Idaho, it must get power from Montana, particularly power from the Montana Power Co., south from Butte.

We want to put this on its merits. And again I want to thank the committee. And I respectfully urge that, if there is any doubt, the matter be reopened and this plant given to the State which deserves. We think that State, of course, is Montana.

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We cannot understand how we can be No. 1 priority late in the fall and then have an engineering firm come in, and then find that within a month the question is changed.

In closing, let me say this again, Mr. Chairman: When we were discussing the matter with Mr. Lilienthal, after a half hour it was stated by Mr. Lilienthal at that conference that the men hired were scientific people, professors, and that they would like to live in Pocatello rather than in Glasgow. And, when I asked Mr. Lilienthal whether or not that was the basis of the decision, he said, "Governor, I should not have said it that way."

Now I know that Idaho has a fine resort, Sun Valley; but, as Montana Governor, I think that the matter should be settled on its merits, and not on the recreational facilities for the professors.

As Senator Murray pointed out, we have recreational facilities in Glasgow; but it has always been my philosophy of life that if you are interested in a thing you should go there and work. That is the way we feel in Montana, and I know that is the way the other States feel.

Again, this is the first time that I have seen the Idaho Representatives, outwardly at least, contending for the State of Idaho.

When I was here in Washington, I was startled by the fact that the Sunday night before I met Mr. Lilienthal there was no Idaho pressure; it seemed like the thing was cut and dried.

The CHAIRMAN. I think that is exactly right.

Governor BONNER. So this comes out here for the first time today.

The CHAIRMAN. I want to make an observation, Governor. I think you have now stated something that is rather favorable to the Commission's selection; in other words, that there was no political pressure of any kind, character, or description. It has been a selection without that kind of attempted interference.

Of course, this hearing has been called by the joint committee, again I say, at the request of the Montana delegation and yourselves. And naturally the Idaho Senators are here because they are now in a position of not wanting to see the thing reversed.

Governor BONNER. Oh, I do not blame them for being here.

Senator TAYLOR. Mr. Chairman, may I say that we did not interfere in this matter. We felt that it was a matter above and beyond politics; that it should be decided on its merits. And we did not take any action at all until we heard that the Montana delegation was trying to make it political.

The CHAIRMAN. Thank you very much, gentlemen.

(Whereupon, at 5:55 p. m., the committee recessed to the call of the chair.)

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SELECTION OF SITE FOR REACTOR TEST STATION

TUESDAY, MAY 10, 1949

CONGRESS OF THE UNITED STATES,
JOINT COMMITTEE ON ATOMIC ENERGY,
Washington, D. C.

The committee met at 2:30 p. m., pursuant to call, in room 324, Senate Office Building, Senator Brien McMahon (chairman) presiding.

Present: Senator McMahon (chairman), Representative Durham (vice chairman), Senator Hickenlooper, and Representative Price.

Also present: Senators James F. Murray, Montana; Zales N. Ecton, Montana; and Bert H. Miller, Idaho; Representatives Frank A. Barrett, Wyoming; Mike Mansfield, Montana; Wesley A. D'Ewart, Montana; and Roy W. Wier, Minnesota; William L. Borden, Executive Director; Harold Bergman, Deputy Director; and E. L. Heller, staff member, Joint Committee on Atomic Energy.

The CHAIRMAN. Let us come to order, gentlemen.

You will recall that at the last hearing we heard the representatives of the State of Montana in a morning and afternoon session in their presentation on the desirability of going to Montana instead of to the State of Idaho with this project.

You will also recall that the chairman expressed what I think is the unanimous viewpoint of the committee: namely, that we are not a site-selecting committee and that our function, in this particular matter at least, is confined to the examination of the matter on two scores. First, was there any undue influence or corruption that could be alleged—which, of course, no one has suggested in the slightest degree—or, second, is it such an obviously improper and bad choice as to indicate choice "by guess and by golly" and by whim and caprice?

Speaking now only for myself, of course, the evidence that has been adduced so far has indicated neither of those conditions. I merely reiterate that, so that we can keep this thing within the confines and the bounds of good practice, and within the bounds of what we, as a committee, should seek to do.

You will also recollect that at the last session I suggested that the engineering firm of Smith, Hinchman & Grylls, who, it was testified, were retained to make a survey, be invited to come here for the purpose of making such observations as they care to on the allegations that were made by the Montana witnesses regarding two or three salient points in their report.

It is only fair to the Montana people and fair to this engineering firm that they have an opportunity to do so.

Wallace S. MacKenzie, Mr. Borden tells me, is here from that engineering firm. Mr. MacKenzie, would you come up here?

I might say that Congressman Barrett, from Wyoming, is here in person, and he has asked for an opportunity to present to the com-

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mittee reasons why we should all solve this situation by placing it "in the middle"—in other words, in Wyoming.

Representative BARRETT. That is right, a compromise, Senator.

The CHAIRMAN. Mr. Barrett, would you care to proceed first?

STATEMENT OF HON. FRANK A. BARRETT, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF WYOMING

Representative BARRETT. I would appreciate it, Senator McMahon. I am Frank Barrett, a Member of the House from Wyoming.

Of course, we in Wyoming make no charge, Senator, that this site was selected by any undue influence of any kind or character or that, indeed, we could prove caprice in the matter. We do think that there are many reasons why a site along the Union Pacific Railroad in Wyoming would certainly in many respects be the proper one.

In the first instance, we have a site there of some 400,000 acres of land that is immediately adjoining one of the main transcontinental railroads of the West, with good highways; and they have sufficient water to supply the needs of this reactor plant.

The fact of the matter is that any water that might be available from the Snake River in Idaho comes from Wyoming, originates in the State of Wyoming, and we could divert it over and use it for this purpose if need be.

In addition to that, Senator McMahon, I would like to say this: Of course, I do not know anything about the end results of this plant or of the civilian uses that might eventually be found feasible, but in that section of Wyoming we do have many natural resources in abundance that I think might well be used along with this plant.

In the first instance, we have tremendous deposits of coal. About 9,000,000 tons are mined right in that area each year. We have tremendous gas fields that will supply a great area covering several States right in this area around Green River. In addition to that, we have the biggest shale deposits in the United States right there, and the Government itself has a plant a few miles over the State line in Colorado, in which it is estimated 120,000,000,000 barrels of oil will eventually be extracted.

And so, with all of these combined together, if any civilian uses are made of atomic energy in the years that lie ahead, certainly that would be a spot where great natural resources are centered.

Now, we have power in abundance in several areas in Wyoming, not far from the site at Green River. Of course, we hope to have the upper Colorado River Basin developed, and several new power dams constructed.

And so it does seem to us that maybe the engineering firm might well take another look at the situation over there; and, as the Senator has well said, in order not to have too much in the way of hard feelings between Idaho and Montana on this matter, they could compromise by locating it in Wyoming. I think, if they did so, there would be no mistake made.

Thank you very much, Senator.

The CHAIRMAN. I understand that Mr. Wier, a Congressman from Minnesota, would like to speak to the committee.

Mr. Wier, out of congressional courtesy, I think you should go ahead now, unless you want to wait. I will leave it up to you.

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STATEMENT OF HON. ROY W. WIER, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MINNESOTA

Representative WIER. I would like to get away now. I want to get over to the House on a bill.

Mr. Chairman and members of the Atomic Committee, I have been watching this, and I am sorry that I did not get in on these hearings previous to the indication of a decision for Idaho.

I represent the Third Minnesota Congressional District, which is largely made up of a major part of the city of Minneapolis, as well as five rural counties, and we have a natural interest in this development, or this project, and I would feel derelict in my duty if I did not come over here and speak for the people that I represent.

Sentiment is very strong in our State, our whole State, I think it is safe to say, on the development of this project in the State of Montana. Personally, I think we can all agree that that great State of Montana has everything that nature has to offer humanity in the way of natural resources. I think Montana is the most diversified State in every approach to God's resources of any of the States of the Union. I think all of the arguments that have been made here for any of the other States are just as applicable to the State of Montana.

And briefly, I just want to submit to this committee, and for the record, that Minnesota is very much concerned, and very hopeful that this project will be considered in the light of real consideration for the State of Montana.

The CHAIRMAN. Thank you.

Senator MURRAY. Mr. Chairman, on behalf of Montana I want to thank the gentleman for his remarks. I think he has stated very correctly that Montana has the most diversified resources of any State of the Union. It has all of the requirements necessary for a plant of this character.

While I am speaking, I might say also for the record, in answer to the Congressman from Wyoming, that there is no bitter conflict between Montana and Idaho with reference to the location of this plant. We are not quarreling with Idaho. There is no feeling whatever in this matter. It is only a question of determining where this plant should properly be located. And I think that the facts already brought out by this committee at the last hearing, and the subsequent proof that has been submitted to the committee, demonstrates that Montana is the logical place for it, and that the engineering firm that made the investigations did not give due regard to the facts which justify its location in Montana.

The CHAIRMAN. Thank you, Senator.

Now are there any other Members of the Congress who wish to make an observation?

Representative MANSFIELD. Mr. Chairman, I would like to have the privilege of being heard for the last 10 minutes this afternoon.

The CHAIRMAN. After we finish with the engineering witnesses?

Representative MANSFIELD. Yes, sir; and after all the questions are asked.

The CHAIRMAN. Yes, Mr. Mansfield, we will be glad to do that.

Mr. MacKenzie, you are to speak for the engineering firm of which you are a partner? You may remain seated if you want to.

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STATEMENT OF WALLACE MacKENZIE, PRESIDENT, SMITH, HINCHMAN & GRYLLS, CONSULTING ENGINEERS, DETROIT, MICH.

Mr. MacKenzie. We are a corporation, and I am the president of the corporation.

The Chairman. You are Mr. Wallace MacKenzie?

Mr. MacKenzie. I am. And I am the president of the corporation.

The Chairman. It is a corporation?

Mr. MacKenzie. Yes, sir; it is a corporation.

The Chairman. All right, Mr. MacKenzie.

I take it that you have covered the testimony that was given here in the previous hearing.

Mr. MacKenzie. Yes.

The Chairman. Would you like to make some observations on the questions that were raised?

Mr. MacKenxie. I don't believe so, in any particular.

I have with me here, Mr. Grubb of our company, who was our man who headed up this investigation for the Atomic Energy Commission, and who is very familiar with every point involved, and gathered the information as it came in from the field, and I would rather that he would answer in any detail.

The Chairman. Before we do that, Mr. MacKenzie, I would like you to qualify your organization as to its qualifications for doing this job. Will you do that, please?

Mr. MacKenzie. Yes. I have a written qualification here, which I can leave with the committee. But we are an architectural engineering firm who have been in business for approximately 35 years, and have during that time, of course, done many hundreds of millions worth of varied construction work, including, during the war, seven large ammunition plants, for the Ordnance Department.

We are at present engaged in designing the new technical center for General Motors in Detroit.

The Chairman. You are a Detroit organization? That is your home base?

Mr. MacKenzie. We are a Detroit organization, yes. But we have been doing work throughout the United States and also in Canada and Europe.

We have considerable experience in the field of chemical enginering. I include in that class distilleries, for example. We designed and built the Hiram Walker distillery out in Peoria. We also designed a large distillery for them in Dumbarton, Scotland.

We have for the last 10 years done all the engineering work for Joseph E. Seagram & Sons, Inc. We have done work for other distilleries, including the Fleischmann Co.

I mention this specifically because of the process, the nature of the work, in which we not only engineer the buildings themselves, but the process equipment that goes into them, and in many cases the selecting of the site for the plant.

Senator Murray. You do not mean to infer that the products are of an explosive character, do you?

Mr. MacKenzie. I think they are, in more ways than one.

The Chairman. Have you ever done any work for the United States Government, with the exception of the seven buildings that you designed during the war?

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Mr. MACKENZIE. Oh, yes. We have done considerable work for the Government. In the First World War we did a great deal of work in design of gun carriages, and so on, as well as several ordnance plants, including the Curtiss airplane plant at Buffalo, which, in light of today's airplane business, is rather a joke, but nevertheless—and the Dodge plant at Detroit, which manufactured recoil mechanisms for French 75 type guns.

The CHAIRMAN. Have you ever done any work before this engagement for the Atomic Energy Commission?

Mr. MACKENZIE. No, sir.

The CHAIRMAN. This was your first venture?

Mr. MACKENZIE. That is right.

Senator MURRAY. Well, Mr. MacKenzie, your explanation here of the activities of your firm applies to construction work, principally. Your problem in this instance was not one of construction, was it?

Mr. MACKENZIE. No. But I think I did qualify by stating that we had had a great deal of experience in locating sites for these projects, not only in this country, but outside the country. During the war, we had quite a hand in the selection and determining of the sites for these seven ammunition plants. So that the question of selecting a site was no new problem.

Senator MURRAY. When you were employed to do this job, did the Atomic Energy Commission give you a program, or lay out for you the problems involved in determining a site for this plant?

Mr. MACKENZIE. Yes; I would say they did.

Senator MURRAY. You would say they did?

Mr. MACKENZIE. Yes.

Senator MURRAY. Did they do that in writing, or verbally?

Mr. MACKENZIE. Both.

Senator MURRAY. What were their requirements?

Mr. MACKENZIE. Of course, it was only in the last few weeks that we began to find out in detail the shape of the buildings, and that sort of thing.

The CHAIRMAN. What are you finding that out for now?

Mr. MACKENZIE. We are working for the Atomic Energy Commission on an estimate.

Senator MURRAY. That has no relation to this problem at all?

Mr. MACKENZIE. No.

The CHAIRMAN. Are you engaged in that estimate along with anybody else?

Mr. MACKENZIE. No. We are doing it for the Argonne Laboratory in Chicago.

The CHAIRMAN. Your relations have been with them rather than with the main office here in Washington?

Mr. MACKENZIE. That is right.

The CHAIRMAN. Were you selected by the Argonne Laboratories?

Mr. MACKENZIE. Not on this survey. This is on the estimate that you are talking about, I believe.

The CHAIRMAN. Yes.

Mr. MACKENZIE. Our relations have been with the Argonne Laboratory.

The CHAIRMAN. Not on the site selection?

Mr. MACKENZIE. No.

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The CHAIRMAN. But on the estimate on the reactors to be built there?

Mr. MACKENZIE. On the materials-testing reactors, yes.

The CHAIRMAN. Are you in competition with anyone else in this work?

Mr. MACKENZIE. No.

The CHAIRMAN. Does that explain the fact that you received the total sum you did? What was it you received for the site location?

Mr. MACKENZIE. You mean as a fee, or for the total work?

The CHAIRMAN. The total work.

Mr. MACKENZIE. It was something over $30,000, I think.

No, it was a little higher than that; about $45,000.

The CHAIRMAN. Your fee was very small, as I recollect it.

Mr. MACKENZIE. It was based on 10 percent of what we thought might be the cost, which was $30,000. And it ran higher than that, somewhat.

The CHAIRMAN. It looks as though you got your foot in the door.

Mr. MACKENZIE. I hope we have.

The CHAIRMAN. Well, that was the purpose of setting that fee?

Mr. MACKENZIE. No; I wouldn't say that exactly, but it was the first opportunity that we had had to do some work for the Commission, and we certainly didn't want to——

The CHAIRMAN. I do not blame you for that. What I am interested in is, How did that come about.

Mr. MACKENZIE. How did we get this offer? By continually contacting the Commission and sending our credentials to them, and so on. Why they selected us eventually, I don't know.

The CHAIRMAN. You seem to have very excellent qualifications. I was not implying that there was anything irregular, and certainly nothing dishonest, but I was interested in tracing out the details as to your being awarded this job, out of which seems to be growing the enginering assignment for the whole project.

Mr. MACKENZIE. I can't say that. I wouldn't want to say that.

The CHAIRMAN. You would limit it to one reactor?

Mr. MACKENZIE. Not even that. All we have been asked to do is to make an estimate. We have not been awarded the contract for architect-engineer services on the project at all. Neither have we had any discussion with anyone tending toward negotiating for a contract or anything of that kind.

Senator ECTON. Mr. Chairman, I think your question of Mr. MacKenzie is very pertinent, and I am very much interested in it. I think it should be pursued a little further.

What I would like to know, Mr. MacKenzie is, How did you happen to get this job to make this survey of these two prospective atomic sites? Did you bid on it? Or were you approached by a member of the Atomic Energy Commission, asking if you could do it? Or how did you happen to land the job?

Mr. MACKENZIE. By continually making a nuisance of ourselves, I suppose, with the Commission and asking for work.

Senator ECTON. You went after it?

Mr. MACKENZIE. Not that particular job; no. We didn't know that there was such a job, but we knew that there probably was additional work to be done by the Commission, and we wanted some of it.

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Senator ECTON. When you were engaged to do this work what were you supposed to do?

Mr. MACKENZIE. What were we supposed to do?

Senator ECTON. Yes; what were your instructions?

Mr. MACKENZIE. We were given the two sites, and we were supposed to survey these two sites and make a recommendation to the Commission as to which site they should purchase for this particular plant.

Senator MURRAY. Mr. MacKenzie, I started to ask you questions along that line a few moments ago, and you told me they gave you specifications as to what your requirements would be with reference to the location of such a site as this.

Mr. MACKENZIE. I believe that is so.

Senator MURRAY. What specifications did they give you? What did they tell you that was requisite for the location of a site of this character?

Mr. MACKENZIE. Here is a transcript of the project requirements.

Senator MURRAY. I know, but that was not what the Atomic Energy Commission gave you. That is a result of a survey that they made. And after that survey was made, they requested you to make a subsequent check-up on the matter to determine it. They had finally gotten down to the point where there were two places where this could be located. One was in Idaho, where they had two possible sites, and the other was in Montana. My understanding is that your firm was hired after this lengthy study had been made by the Atomic Energy Commission, and your task was to determine for them which of these sites would be the proper site for the location of the project.

Mr. MACKENZIE. That is correct.

Senator MURRAY. Well, now, what did they tell you when they told you to go and investigate this? You knew at the time that Fort Peck was considered a favorable site for the project. You knew that; did you not?

Mr. MACKENZIE. I think so; yes.

Senator MURRAY. What is that?

Mr. MACKENZIE. I believe so; yes.

Senator MURRAY. You knew that the prospects were that Fort Peck would be selected as the site?

Mr. MACKENZIE. I don't know that I ever knew that; that it was to that point. I knew it had been considered as a favorable site, as a possible site.

Senator MURRAY. The testimony here showed, it seems to me, that the Fort Peck site was the site that was regarded with most favor.

Mr. MACKENZIE. That was the testimony here in the investigation.

Senator MURRAY. And in the record, as I understand it, also. But you went out to undertake to establish the fact that the Idaho site was a better site.

Mr. MACKENZIE. I don't think that is correct. I don't think we went out with any preconceived idea at all. In fact, our problem was one of looking at two sites, and without any weight on either one, and determining purely from an engineering-survey basis which site we thought would fill the bill best.

Senator MURRAY. Then, in order to carry out that task, that undertaking, it would be necessary for you or your qualified engineers to go actually upon the ground and make a thorough investigation of the conditions that prevailed at both sites.

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Mr. MacKenzie. That is right.

Senator Murray. Did you actually go upon the ground, in t] Montana site, at Fort Peck, and make a thorough investigation of a the conditions that existed there?

Mr. MacKenzie. We had a number of men in the Fort Peck ar for some time gathering information from all the available source

Senator Murray. Before you were engaged?

Mr. MacKenzie. No: after we were engaged. We sent groups t both the Fort Peck and the Idaho sites.

Senator Murray. You sent experts to both sites?

Mr. MacKenzie. Yes.

Senator Murray. What experts did you send to the Montana site Give us their names, and just when they visited the Montana sit and what they did in the course of their investigation.

Mr. MacKenzie. I don't know if I have that information her There were quite a number of men involved.

Mr. Grubb (principal engineer, Smith, Hinchman & Grylls). don't believe I can give the dates.

Senator Murray. Well, can you give us the names of the engineers qualified engineers, that you say actually visited the Montana sit and went upon the ground and made a thorough survey?

Mr. Grubb. I think I can.

Mr. MacKenzie. I don't know whether I understand your questio just exactly. The conditions at the time we made this investigatio did not permit of our walking into the entire site and being able t see what was there, and what the ground looked like, because bot sites were covered with snow at the particular time. So we had to g on the testimony of people who were familiar with those sites.

Senator Murray. So your report, then, was made up largely o testimony that you received from other parties who went on the site?

Mr. MacKenzie. That is right.

Senator Murray. That would be, of course, hearsay testimony.

Now, who is the witness here, Mr. Chairman? It seems to me that this witness is undertaking to tell us that he had a contract with the Atomic Energy Commission and that that contract required him to make a thorough investigation of these sites that were contemplated by the Atomic Energy Commission. It seems to me that he ought to be able to tell us exactly what he did, what the names of the engineers are, and exactly what they did in the course of their investigation.

The Chairman. Senator, I agree with you that the testimony should be forthcoming. But, after all, it is a pretty big organization. Here is the president of it, and with him he has an assistant, maybe not his right bower but his left bower, who is supposed to know. And I think he is entitled to get the specific information from his assistants. Do you not think so?

Senator Murray. Well, he ought to be able to tell us who the engineers were that were directed by him to go upon the ground, when they went there, and what their report was.

The Chairman. I do not know whether he feels that he is competent to do that or not.

Mr. MacKenzie. We can give you the names, but we don't have the information here as to the exact days when each man went to a certain place. We could get that together for the record, but we do not have it here.

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Senator MURRAY. I think that is very important. Because the people from Glasgow have furnished affidavits to this committee indicating that these people that represented your firm, that came there for the purpose of making a study of the site, did not actually go upon the site at all. And, as you pointed out a moment ago, the ground was covered with snow. It was at a time of the year when it was impossible for you to make a proper investigation of your own. And you say that you took statements from other parties, and relied upon information which you received from others, with reference to the conditions that prevailed on the ground.

Mr. MACKENZIE. Including consultants whom we employed to give us information as to the geology and the water conditions, and so on, who know that country, and know it very well.

Senator MURRAY. They were not employed by your firm?

Mr. MACKENZIE. Yes; they were employed by our firm.

Senator MURRAY. Give us the names of those.

Mr. MACKENZIE. One is a geologist, Mr. Harold T. Stearns.

Senator MURRAY. Where does he reside?

Mr. MACKENZIE. Hope, Idaho, at that time.

Senator MURRAY. He resided at Hope, Idaho?

Mr. MACKENZIE. Yes.

Senator MURRAY. And you say that he was on the ground, at the Fort Peck project? This engineer?

Mr. MACKENZIE. Yes.

Senator MURRAY. He actually visited this ground at Fort Peck?

Mr. GRUBB. That is right.

Senator MURRAY. And made a thorough investigation of the conditions that prevailed right there on the actual site?

Mr. MACKENZIE. As to what could be done under the conditions.

Senator MURRAY. What was his name, you say?

Mr. MACKENZIE. Harold T. Stearns.

Senator MURRAY. And what did he report, then? Did he make a written report on the conditions that prevailed at the Fort Peck site?

Mr. MACKENZIE. Yes.

Senator MURRAY. And you have that report?

Mr. GRUBB. Yes, sir.

Senator MURRAY. I wish you would present it, sir.

Mr. GRUBB. It is a part of the survey.

Senator MURRAY. Is this your survey?

Mr. GRUBB. Yes; it is.

Senator MURRAY. This whole record, here, is a record compiled by your firm?

Mr. GRUBB. Correct.

Senator MURRAY. For the Atomic Energy Commission? And the report from that engineer from Idaho is included there?

Mr. GRUBB. It is included in the appendix to the survey.

Senator MURRAY. Did he report to you the weather conditions that prevailed in Montana at that time, and did he tell you that it was impossible to get on the ground, and that it was therefore impossible for him to make a study of the conditions?

Mr. MACKENZIE. I don't believe so. I mean, he is a geologist, familiar with the formations, and so on, in that locality; and he reported from his knowledge rather than from any survey of the site at that particular time.

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Senator MURRAY. Well, how do you know that he was familiar with the geology in that particular location?

Mr. MACKENZIE. By his reputation as a geologist.

Senator MURRAY. You just assumed that. You assumed, he being a geologist and an engineer, that he knew the conditions there, without having to visit the ground and make a thorough investigation on the ground?

Mr. MACKENZIE. As far as the geology of that location is concerned; yes.

Senator MURRAY. And you were willing to accept his statement on that.

I notice Mr. Stearns' report here in the record that you have referred to, and he points out there that he had no personal experience with reference to the climatic conditions there. That is on page 4 of his statement. He also says in connection with thunderstorms that he had no personal experience. And I see nowhere in this statement does he claim that he had a thorough knowledge or understanding of the geological conditions that prevailed at this site.

The CHAIRMAN. Of course, Senator, it might be observed that any site which you could not approach in the middle of winter because of weather conditions might have something said against it.

Senator MURRAY. Yes; but I would like to have him say it. I would like to have him discover it and say it. Because it seems from our understanding of the case that the Atomic Energy Commission had practically agreed on the Montana site, and it was not until just a short time before Christmas that they began to change their views.

And they hired your firm at that time, Mr. MacKenzie. And apparently the task that you were given was to justify their action in turning down the Fort Peck project and reporting favorably on the Idaho site.

Mr. MACKENZIE. Well, I don't think the proposition was put up to us that way. In fact, I am quite sure it wasn't. We were asked to make a comparative report on two sites. At the time we started the report, I don't believe we had any knowledge at all that there was any question of giving it up, or whether they had made up their minds in any way with regard to the site.

Senator ECTON. In other words, you were to make the survey, and draw the conclusion as to which was the best site?

Mr. MACKENZIE. Right; independent of anything that we might have heard or might not have heard.

Senator ECTON. You were asked to get the facts, and come to a conclusion. Was that it, Mr. MacKenzie?

Mr. MACKENZIE. That is right.

Senator ECTON. In other words, it was your firm that decided that the atomic plant would be at Arco, rather than the Atomic Energy Commission down here.

Mr. MACKENZIE. I don't know that we decided that, quite. I think we would leave that up to the Commission, or the congressional committee, or someone.

But anyway, what we did was to examine these sites under about 14 different categories, or headings of qualifications, and put down the results of our investigation, and give so many points for each site on those particular qualifications, and add up the score.

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Senator ECTON. Did you ask anybody, or did you contact any State authority or anybody within Montana who knew something about these various phases which you were investigating?

Mr. MACKENZIE. Oh, yes; many people within the State of Montana.

Senator ECTON. For instance, did you contact the State School of Mines at Butte?

Mr. GRUBB. I don't remember whether that was contacted or not.

Senator ECTON. And did you contact any of the engineers at Fort Peck?

Mr. GRUBB. Yes.

Senator ECTON. We have information to the effect that representatives of your firm did not contact some of the experienced engineers at Fort Peck in regard to this.

Mr. GRUBB. I think your information is in error.

Mr. MACKENZIE. I won't say that. You say you have information that we didn't contact some of the engineers. That may be quite possible. But we did, also, and there is no question about it, contact a number of engineers.

Senator MURRAY. Engineers at the Fort Peck site?

Mr. MACKENZIE. That is right.

Senator MURRAY. Will you give us the names of the engineers that you contacted there and the information that you got from them?

Mr. GRUBB. The only one I can recall right now is Colonel Lee.

Senator MURRAY. Colonel Lee?

Mr. GRUBB. He was the commanding officer, as I recall it.

Senator MURRAY. And you wish this committee to understand that Colonel Lee recommended against the Fort Peck site?

Mr. GRUBB. I do not. We asked him a specific question, which he proceeded to answer to the best of his ability.

Senator MURRAY. What was his answer?

Mr. GRUBB. The question related to the suitability of the Bearpaw shale for heavy foundations. There had been reports that the shale was incompetent, and the experience with some of the construction at the dam was not too good.

Movement had occurred in portions of the spillway, vertical movement of over a foot, presumably caused by swelling of the bentonite contained in the shale.

Senator MURRAY. Did you point out to this engineer the exact site that was about to be selected? I am not talking now about the dam and the conditions prevailing around the dam. I am talking about the location of the site, which was some distance away from the dam. Did you point out to him that location and ask him any questions with reference to the geological conditions there?

Mr. GRUBB. I think the question is misleading to some extent. I would say we didn't know the exact site, and perhaps we still don't know where the individual units are going to be located. We were concerned with the general area, comprising something over 400,000 acres, which is defined in the report.

Senator MURRAY. And in your survey, then, you did not know the exact location of the site that was to be provided for this project.

Mr. MACKENZIE. You cannot make a site plan and locate structures, and so on, relatively, until you have a complete survey of the site, of the particular site, and know the boundaries. And we did not.

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Senator MURRAY. You did not have that?

Mr. MACKENZIE. We didn't have that survey at that time, no; on either side.

Senator MURRAY. These conditions that you have referred to in reference to bentonite do not exist at the actual point where this site was to be located?

Mr. GRUBB. We have no information that that was the case. All the information we had was as to the shale over the entire area, or underlying the entire area.

Senator ECTON. Why did you not contact the Geological Survey offices in Helena and Great Falls? They had made a study of those formations out there for years.

Mr. MACKENZIE. We did that; did we not?

Mr. GRUBB. I don't think we did. I think this might clear up the problem. We were concerned principally with the ability of this material to stand up under heavy loads. As a result of our investigation and examination of information, we concluded that it is competent; and we have not penalized the Fort Peck site in any way beyond what had been found necessary to be done in the construction of the dam; namely, to seal the exposed surface of the shale to prevent loss or pick-up of moisture, which results later in a swelling of the material.

There appears to be another minor problem. The shale is somewhat elastic, and the movement of some of the slabs in the dam spillway appears to result from a rebound of the shale following the removal of a large amount of overburden.

Senator ECTON. But it was not penalized on this account? Is that right? Did I understand you correctly?

Mr. GRUBB. That is right. The only penalty we attached to the Fort Peck site, insofar as geology was concerned, was the need for sealing freshly exposed surfaces of shale to prevent this moisture change which results in swelling of the material and consequent movement of whatever is imposed on it.

Representative MANSFIELD. Will the gentleman yield?

According to the Montana Standard for April 24, the Great Falls Tribune of May 1, and the Glasgow Courier, it is stated:

> The Montana area was rejected as the site for the atomic reactor station partly because a report declared there was danger from earthquakes and floods. This statement, I understand, is in the statement of Smith, Hinchman & Grylls, the industrial engineers who surveyed the various sites.

On what do you base a statement such as that, which is absolutely fallacious and without foundation.

Mr. GRUBB. Would you read the basis on which it was supposed to be rejected?

Representative MANSFIELD (reading):

> The Montana area was rejected as the site for the atomic reactor station partly because a report declared there was danger from earthquakes and floods.

So far as I know, we have never had an earthquake up in that region; though we have had them, and still have them in the region of Helena, which is a good deal closer to Arco. They have had earthquakes in the Pacific Northwest within the past month. But, to my knowledge—and I am sure the delegation can bear me out—there has never been an earthquake in that part of Montana. And, so far as the floods are

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concerned, we have minor rises in the water at certain times, during certain years, but nothing of any consequence.

Mr. GRUBB. In regard to earthquakes, we examined the earthquake data for the area, such as it is. It, of course, is not too old. As I recall, it dates back to something like 1880 or 1889. Since that time, it is likely that Glasgow, Mont., was disturbed most by an earthquake which occurred in Saskatchewan in 1909. That appears to be the only quake which probably disturbed Glasgow to any appreciable extent.

Representative MANSFIELD. Senator Murray, you are a few years older than I am. You were in Montana at that time. Do you recall any earthquake in the vicinity of Glasgow or Fort Peck in 1909?

Senator MURRAY. No. I was there then, and I never heard of an earthquake in that area.

Mr. GRUBB. It perhaps didn't exceed an intensity of four or five, which might have been overlooked. In any case, Professor Williams from Logan, Utah, who was retained as a consultant on earthquake hazard, concluded that the Fort Peck area was substantially as safe as any area in the United States. And there was no penalty attached.

Representative MANSFIELD. Why did you go to Utah to get somebody to give you a report on the earthquake factors in Montana, when at the school of mines you have a seismograph and a faculty which is well versed in this particular matter?

Mr. GRUBB. Certainly, a disinterested third party is of more value for our purposes than a partisan.

Representative MANSFIELD. I see.

Senator MURRAY. You think this school of mines would be a partisan institution and would not give you the truth?

Mr. GRUBB. I didn't mean to say that. I said that it would be of more value, and I think that is true.

Senator MURRAY. It would be of more value to take your information from some outside source?

Mr. GRUBB. From a competent third party, by all means.

Senator MURRAY. And, in this instance, who was the competent third party?

Mr. GRUBB. Prof. J. Stewart Williams.

Senator MURRAY. Who?

Mr. GRUBB. Prof. J. Stewart Williams from Utah State Agricultural College at Logan, Utah.

Senator MURRAY. And he advised you, did he, that the Montana location was a dangerous location on the account of the possibility of earthquakes?

Mr. GRUBB. He did not.

Senator MURRAY. What did he tell you?

Mr. GRUBB. He said that the Fort Peck area was as safe as any place in the United States. That is stated in the report.

Senator MURRAY. We are in full accord here. Then, where do you get the information that it was dangerous from that standpoint? Did you have any information of that kind whatever?

Mr. GRUBB. It appears that that is a newspaper fabrication.

Senator MURRAY. You were talking a little while ago about Colonel Lee. Colonel Lee tells us that the tallest and heaviest building in Montana is the powerhouse at Fort Peck.

Mr. GRUBB. I think probably the surge towers at the dam are the heaviest.

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Senator MURRAY. The towers?

Mr. GRUBB. The surge towers at the dam, in connection with the powerhouse; yes.

Senator MURRAY. And he told you that no fault or movement has ever occurred at that place?

Mr. GRUBB. That is correct.

Senator MURRAY. So that, from the standpoint of any movement or any danger from conditions of that kind, they do not prevail at all.

Mr. GRUBB. That is right. Except that that powerhouse was conducted with benefit of some earlier experience, wherein it was found that sealing of the shale was necessary.

Senator MURRAY. But, so far as this site was concerned, which is some considerable distance away from that dam, you never got any exact information on that.

Mr. GRUBB. We have no borings.

Senator MURRAY. So that there is nothing to indicate that there would be any danger from erecting buildings on that ground.

Mr. GRUBB. I think that is correct; yes. That is right. We gave this place no penalty on the Fort Peck site because of any supposed incompetency of the soil. We had to go to the bedrock.

Senator ECTON. What did bring forth the penalty for Fort Peck site?

Mr. GRUBB. In respect to geology?

Senator ECTON. Yes.

Mr. GRUBB. Merely the problem of sealing the soil, sealing the exposed shale.

Senator MURRAY. Sealing the exposed shale. That was the only problem?

Mr. GRUBB. That appears to be the only problem.

Representative MANSFIELD. That was the only reason why Arco was selected over Fort Peck?

Mr. GRUBB. No, sir.

Mr. MACKENZIE. Oh, no.

Mr. GRUBB. That is the only reason that we expressed a preference for Idaho in respect to geology.

Representative MANSFIELD. What were some of the other penalties against Fort Peck that you enumerated in your report to the Atomic Energy Commission?

Mr. GRUBB. We considered 12 or 14 points. The first was isolation. The second was security. The third was climate.

Senator ECTON. Let us take them one at a time.

Mr. GRUBB. All right.

Senator ECTON. Your name is Grubb?

Mr. GRUBB. That is right.

Senator ECTON. Of course, you understand, Mr. Grubb, we are not isolationists out in Montana, but we understood that the Atomic Energy Commission wanted a site that was isolated. And we thought that we had 400,000 acres out there that could meet those requirements.

Mr. GRUBB. They do meet the requirements, and they meet them very well. On the other hand, that is just one point of a dozen or more.

Senator MURRAY. Was that a point that was objectionable?

Mr. GRUBB. That was a point that was in favor of Fort Peck.

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Representative MANSFIELD. Oh, in favor of Fort Peck.

Senator MURRAY. We are trying to find out from you what are the points upon which you based your rejection, or your recommendation against Fort Peck.

Mr. GRUBB. All right. The second point which we considered, rather briefly, was security, and we expressed no very definite opinion for either one, mainly I think, because we were not competent as to the knowledge of the military problems involved, because that wasn't within the scope of our work.

Senator MURRAY. So you expressed no opinion on that. All right, sir. What was the next one?

Mr. GRUBB. There was a slight disadvantage to Fort Peck in that regard, however, in that it is close to the Canadian border, which introduces some minor problems which you can imagine as well as I.

Senator MURRAY. The fact that it was close to the Canadian border? We do not expect any attacks from Canada; do we? We do not expect the Canadians to come down and attack us?

Mr. GRUBB. I don't think so; no.

Senator MURRAY. They are extremely friendly to us out in Montana.

Mr. GRUBB. That is very fine.

Senator MURRAY. I thought that would be a point in our favor: To have it located close to a border on the other side of which there is a friendly power. It seems to me that you could not find any objection on that, on the fact that it is close to the Canadian border.

Representative MANSFIELD. Furthermore, you have one of the most vital airfields in the United States at Great Falls, and satellite air bases right in the vicinity of the Fort Peck Glasgow area, for protection.

Mr. GRUBB. Perhaps so, sir. As I say, we did not consider security as too important a point in our discussion.

Senator MURRAY. So that does not figure in your report.

Mr. GRUBB. No.

Representative PRICE. It does figure in the report. That was one of the points on which they gave a preference to Idaho.

Mr. GRUBB. The preference was based mainly on the proximity of the Canadian border.

Senator MURRAY. You preferred Idaho?

Mr. GRUBB. Because they were more centrally located.

Senator MURRAY. Because the Montana site was located near the Canadian border?

Mr. GRUBB. That is right.

Senator MURRAY. Well, what is the basis of that conclusion? It seems to me that there ought to be some basis for your conclusion that a site being closer to the Canadian border than the Idaho site would be less desirable. Otherwise it does not hold water.

Mr. GRUBB. Certainly the center is more secure than the circumference.

Senator MURRAY. You think notwithstanding the fact that we have this great Army air base at Great Falls, which has satellites all over the State of Montana, included in this particular area, this location is a danger spot? It is not as secure as the location down in Idaho?

Mr. GRUBB. I am afraid we are talking about very small degrees of difference. I would not like to magnify them any more than they are.

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Senator MURRAY: You do not consider that an important point?

Mr. GRUBB. It is not too important, certainly not.

Senator MURRAY. All right.

Mr. GRUBB. The matter of climate was the next factor we considered.

Senator MURRAY. Give us the dope on the climate.

Mr. GRUBB. There are a number of significant figures.

Senator MURRAY. What are they, and where did you get them?

Mr. GRUBB. I do not think you will find them in Dr. Stearns' report. They are taken from the Weather Bureau records for both areas.

Senator ECTON. Havre, in Montana? Is that where you got them?

Mr. GRUBB. By all means, Havre. It might be of interest to know that the highest and lowest temperatures within the history of the weather stations generally around that area were recorded, both of them, at Glasgow, Mont., 35 miles or so from the site. The highest temperature recorded in the area is 113°, I believe, at Glasgow, and the lowest is minus 56° at Glasgow.

Representative MANSFIELD. You recognize the fact, though, that Havre is 200 miles west of Glasgow.

Mr. GRUBB. No; this was Glasgow, sir.

Representative MANSFIELD. But you say you got your figures from the Havre weather station? That is about 200 miles west of Glasgow.

Mr. GRUBB. About 170.

Representative MANSFIELD. Yes. Well, certainly that should not give you a very good indication of the weather, that far away.

Mr. GRUBB. That is true. As I say, our temperature figures are based on Glasgow.

Representative MANSFIELD. On readings in Glasgow?

Mr. GRUBB. That is correct.

Representative MANSFIELD. Did you take your readings in Glasgow and Havre only, or did you take your readings in other parts of the immediate vicinity?

Mr. GRUBB. We took all the stations that were available within a radius, perhaps, of 100 miles or more. Havre is somewhat farther away than that. Glasgow, Malta, Jordan—Jordan is the other side of the reservoir. Malta is up the road a way—and Telegraph Creek, Fort Peck, Havre, and Williston, N. Dak. Williston and Havre, I guess are the farthest away. They are about equally distant east and west of Glasgow.

Principally, our weather analysis is based on Glasgow, and the information that we were able to obtain about that area. The degree day value for that part of the country in Montana is about 85 hundred-degree days, where as for the Pocatello site, it is about 68 hundred. That is quite a significant difference, and is a measure of the intensity or the severity, and the coldness, of the climate.

Senator MURRAY. Do you know that in the construction of the dam there, the contractors worked the year around?

Mr. GRUBB. I wouldn't be surprised. It is quite possible. We work all year around in many places.

Senator MURRAY. I lived in Montana for more than 50 years, and I am also very familiar with Idaho.

Mr. GRUBB. Yes, sir.

Senator MURRAY. I have spent a great deal of my time around Pocatello, Idaho, many, many years ago. And I can see no observable

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difference in the climates of both places. They are both cold in the winter.

Mr. GRUBB. True.

Senator MURRAY. And on the whole, they are very satisfactory climates, I think.

These people back here will laugh at that, but I just attended hearings yesterday in which the medical profession were recommending that people go to climates like Montana.

Mr. GRUBB. And Idaho.

Senator MURRAY. It was recommended that they go there to escape from some diseases like arthritis and rheumatism and things like that.

People like the pure air of Montana, which is so conducive to good health that we were able to send more boys to the war in the last war than any other State of the Union in proportion to our population. Did you know that?

Representative MANSFIELD. The last two wars.

Senator MURRAY. That is a fact that cannot be denied.

Selective Service has the proof on that. And it seems to me that you easterners take a great deal on hearsay about these things. You read in the papers about this cold weather out there, but there is a lot of baloney to it, it seems to me. We seem to thrive on it out there, and I know very well that the engineers and the men that worked at that plant out there, worked all year around.

Mr. GRUBB. That is not unusual at any place in the States.

Nevertheless, our analysis is based on the Weather Bureau data.

Senator MURRAY. I see.

Mr. GRUBB. We have already discussed geology, I think.

Senator MURRAY. Then the Weather Bureau data are all that you have that undertakes to show favorable conditions for Idaho over Montana.

Mr. GRUBB. Yes, as far as weather is concerned.

Senator MURRAY. Then what other points have you discovered against the Montana site?

Mr. GRUBB. The next point we considered was drainage.

Senator MURRAY. What is that?

Mr. GRUBB. Drainage.

Senator MURRAY. All right. Give us information on drainage. What are your relative reports on that?

Mr. GRUBB. The soil at Fort Peck—let's say first that we were concerned with problems of drainage only as they might arise in the event of a catastrophe; that is, to have one of these piles burn up.

Senator HICKENLOOPER. I wonder if you would let me interrupt you for just a second?

I did not get here quite in time to hear the witness discuss several of these points. I take it you are going down the line of the qualifications set forth on this sheet.

Senator MURRAY. Yes.

Senator HICKENLOOPER. I did not get to hear him discuss the matter of security. I wonder if you would mind if he repeated in just a few words, why security was classified as "good" at Fort Peck, and "very good" at Pocatello?

Mr. GRUBB. We expressed a slight preference for the southern site because it was more centrally located.

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Senator MURRAY. He objected to the site in Montana as being too close to the Canadian border. Apparently he was afraid that our Canadian neighbors might make a sneak attack on us like the Japs made at Pearl Harbor.

Mr. GRUBB. I don't think that was the concern so much as it was that in a site more centrally located the United States would be able to cope on its own with the problem, whereas in the other place there would be a combined problem in which more than one country is concerned.

As I said before, we were not too strongly concerned, too greatly concerned, with security, because we did not have the information which was necessary for a complete evaluation of that phase of the problem. We were asked to express an opinion on the basis of such information as we had, or could develop; and we did. Our opinion was that the Fort Peck site is at a slight disadvantage on account of its proximity to the Canadian border.

Senator HICKENLOOPER. Who in your company has had experience in security matters?

Mr. GRUBB. Regional security, such as this? Nobody. We have had local security problems, such as fencing. We have faced those frequently.

Senator HICKENLOOPER. The reason for the question is: Did you have anybody who was adequately equipped to pass on the question of comparative security between this place and the other place? Security is a pretty technical subject.

Mr. GRUBB. That is true.

Senator HICKENLOOPER. And I take it you do not have anybody in your company that is especially trained in security matters, and qualified.

Mr. GRUBB. That is right. We were asked, however, to express an opinion insofar as we were able to develop it.

Representative PRICE. You just had no one in the organization capable of expressing such an opinion.

Mr. GRUBB. We had one, so far as we were able to develop it. We don't present this as an expert opinion.

Senator HICKENLOOPER. If that is the case, then, I would think in all fairness the question of security ought to be marked out. There would not be any justifiable comparison there one way or the other.

Senator MURRAY. It seems to me the same thing would apply with reference to weather. As I say, in the construction of the Fort Peck Dam, they worked all year around. Many people who have lived in Montana for 50 years have found that weather out there very satisfactory and beneficial, and have found it to be a healthy climate.

Senator HICKENLOOPER. With equal fairness, Senator, I would have to take the position that if they had a long historic weather record at both places, they probably would be in a much better position to give an opinion or evaluation on what would be desirable weather conditions. I merely mention the security business because it is apparent that they did not have anybody in the company who knew anything about security, so I do not think they should have classified it from the standpoint of security. That is just my personal opinion.

Excuse me. I did not mean to interrupt.

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Mr. GRUBB. I think that it might be worth while to read the opening paragraph in our section on security.

I quote:

> It is not within the scope of this survey to analyze the possibility of attack or the manners in which such attack might be made. The problems of security, and the ability of the armed forces to protect from the land or air attack whatever site is chosen, presented an important factor in the selection of this site. Therefore, it is recommended that the Atomic Energy Commission obtain such an analysis from competent authority which is available to the Commission.

Senator HICKENLOOPER. Well, right there in the first paragraph, you bar yourself from passing any judgment on security at all.

Representative PRICE. I did not mean to cast any reflection on your organization. I meant that you just have not been in this business of passing on security measures.

The CHAIRMAN. You see, the unfortunate part about it is this, as I see it: In the nature of the disqualification, when you admit that you have no competence in the field, then to give it a rating of "good" in one instance, and "very good" in another, casts something of a shadow on your findings on manpower and other things. It is a form of a "by guess and by golly" formula.

Mr. GRUBB. You will recall, sir, that this report was not to decide where the site was going to be, where this plant was going to be. This report was given to the Atomic Energy Commission. And while we were asked to make a selection, it was intended basically to present factual data to enable them, and assist them, in finalizing their ideas on where this was to go.

Senator HICKENLOOPER. Yes, but who set down this classification, here, and gave the ratings? Did the Commission do that, or did you?

Mr. GRUBB. What page are you speaking about?

Senator HICKENLOOPER. I am talking about this page here.

Mr. GRUBB. We did that.

The CHAIRMAN. You see, the Commissioner, when he voted on the site, had this in front of him. And these five men do not have the time to read great thick reports. I presume they leave that to the staff. If they had it handed to them, with your finding on security "good," and "very good," they would think it would be made on an intelligent estimate rather than simply a guess.

Mr. GRUBB. Perhaps so. We felt that that was our opinion, and that it is presented as an inexpert opinion, perhaps, within the report.

Mr. MACKENZIE. I think it is just our opinion, and that is all; acknowledging that we are not qualified as experts on defense.

Senator MURRAY. Mr. Chairman, my understanding is that the Commission had practically decided that the Fort Peck site was the appropriate site for this project. But it seems that at the last moment they began to think about the recreational and climatic conditions in connection with this, and then they hired this firm.

Senator HICKENLOOPER. Do not forget the night life you mentioned the other day, Senator?

Senator MURRAY. Yes; that is right; the recreational features and wildlife. It is not, of course, the same kind of "wildlife" that you have reference to, Senator.

But my understanding is that this report that you made switched the Commission from Fort Peck to Idaho; and that switch was based upon the conclusions you had given them in your report.

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Mr. GRUBB. I do not know that that is the case. So far as I know, no decision had been made by the Commission at the time this project was undertaken.

Senator MURRAY. But they had found all the conditions in Montana satisfactory up until the last moment, when they began to think about the recreational and climatic and social conditions. They talked about how these people that would be brought there would have some esthetic notions about life and wanted to live in more pleasant and agreeable surroundings. And your report seems to have compelled them to conclude that Idaho would be a more favorable location?

Mr. GRUBB. Perhaps it did. But certainly we feel that way.

Senator MURRAY. You think that the Idaho location is a more favorable one. What, then, are the conditions in Idaho that you think are more favorable than those in Montana?

Mr. GRUBB. Climate, geology——

Senator MURRAY. You think the climate in Idaho is so much more favorable than that of Montana?

Mr. GRUBB. I think it is more favorable. I would not presume to measure the difference. Perhaps the best data is the degree-day data. In the case of the one it is eighty-five hundred, and in the case of the other sixty-eight hundred.

Senator MURRAY. And how about the recreational conditions? Is there not just as good opportunity for recreational activities in Montana as there would be down in the other place?

Mr. GRUBB. What sort of recreational facilities do you have in mind?

Senator MURRAY. Well, we have the finest fishing in the world, and we have the finest hunting in the world, and we have a beautiful lake there which is becoming developed for recreational purposes that will, I think, measure up with anything they have around Idaho. We have two national parks located in Montana, and we have dude ranches scattered all over the State which attract people from every part of the world.

Mr. GRUBB. The Idaho area, within an equal radius, with that which you are encompassing, has these parks and one thing and another, and also has numerous natural places of beauty, parks and the like, the Craters of the Moon National Park being not very far away. Sun Valley is nearby.

Senator MURRAY. Nearby?

Mr. GRUBB. Some 80 miles or so?

Senator MURRAY. I think it is much farther than that.

Mr. GRUBB. But we aren't concerned so much with places where somebody can go once or twice a year on a picnic or a hunting expedition, or to go fishing. We are concerned with recreational facilities that a man can take his family to of an evening.

Senator MURRAY. That is exactly what I have reference to. This lake is located within a walk from the site of this plant.

Mr. GRUBB. It is a pretty long walk.

Senator MURRAY. Oh, I do not think so. Just a couple of miles.

Mr. GRUBB. You are speaking of the reservoir?

Senator MURRAY. Yes; I am speaking of the reservoir, one of the biggest inland lakes in the United States.

Mr. GRUBB. Perhaps so. That is still quite a long walk. Where are the people to live?

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Senator MURRAY. Well, the people there offer to furnish the housing.

Mr. GRUBB. Build on the shore of the lake?

Senator MURRAY. Build where it would be desirable for these people to live. They offer to provide that, and offer to give a guaranty that they will supply the housing needs of these people on a rental basis from a private source. And you are proposing to have the Government enter the building business and build homes down there for these people, when we can furnish them, by private enterprise, right here on the site of the Fort Peck project.

Mr. GRUBB. In regard to the offer of erecting housing, certainly it is a very generous and attractive offer. Probably also the people of Idaho will be willing to make an equally generous offer.

Senator HICKENLOOPER. Did I not see in the Sunday supplement of last Sunday's newspaper where people are getting ready to get rich out of the promotion there in Idaho?

Senator MURRAY. Prices have jumped up there by the thousands of dollars.

Senator HICKENLOOPER. Land is skyrocketing, and people are selling filling station sites and making big profits there in Idaho.

Representative PRICE. One fellow has already tripled the size of his tavern.

Representative MANSFIELD. That is a very unhealthy situation, which could be corrected by selecting Fort Peck as the site.

Mr. GRUBB. Let me say that this matter of housing certainly couldn't have been evaluated at the time this selection was made, because we had no knowledge of it. Furthermore it even now can't be evaluated, because there are a great many questions that necessarily exist as to how it is to be accomplished, and where it is to go, and many other questions.

Senator MURRAY. You think a more thorough study of the situation now might develop a lot of things that were not thought of at the time the previous studies were made?

Mr. GRUBB. No, sir; I don't propose that. I am not saying that.

Senator MURRAY. You are not saying that?

Mr. GRUBB. I am saying that the offer of building houses can't be evaluated on the basis on which it is now made.

Representative PRICE. In your social factors, have you included the matter of housing?

Mr. GRUBB. Yes, sir.

Representative PRICE. What else was considered in your social factors?

Mr. GRUBB. Housing, recreation, the number of people there now, and the ability of the existing communities to serve the people and absorb them.

Representative PRICE. What factors did you find at the time of your survey in connection with housing at the two sites?

Mr. GRUBB. I think at Glasgow, it was concluded that substantially all of the homes needed for personnel, permanent personnel, would have to be provided by somebody. At Pocatello, it was assumed that probably 25 percent of the people, of the families moving in, would be absorbed by existing communities, and the other 75 would have to be provided for.

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Senator MURRAY. Pocatello is 75 miles away from this Idaho site.

Senator ECTON. How could they live at Pocatello and work at this site, some 80 miles away?

Mr. GRUBB. It could be done by providing transportation.

Senator MURRAY. That would be 160 miles a day, then, going and coming.

Mr. GRUBB. Well, Pocatello isn't the only place that could absorb people. Blackfoot and Idaho Falls are both much closer than Pocatello is. Blackfoot is 47 miles, or so, just under 50, and Idaho Falls is, I guess, a little over 50.

Representative PRICE. The nearest settlement of size is at least 47 miles away from the site?

Mr. GRUBB. Well, Arco is the county seat. There are about 600 people there, or thereabouts. And Blackfoot has some four or five thousand.

Fort Peck is not, I think, a suitable place to expand a large civilian population. It is a Government reservation.

Senator MURRAY. We had 20,000 people there during the construction of the dam.

Mr. GRUBB. Yes; but they were all associated with the dam, the construction of the dam.

Senator MURRAY. Yes. But we supplied housing for them. And it was a situation in which a good many of the workers lived right in Glasgow. Only a small portion of them lived at the site of the dam.

Mr. GRUBB. Well, first let's say there are two classes of people for whom homes have to be provided. One is the construction workers and the other is the permanent employees of the station.

We have assumed that in both places, a large construction camp will have to be built, and probably temporary housing of one sort or other will be brought direct.

Representative PRICE. Mr. Grubb, you estimate that at the Fort Peck site 100 percent housing requirements would have to be met by new construction.

Mr. GRUBB. Yes, sir.

Representative PRICE. And you say that at the Arco site about 25 percent can be absorbed by an existing housing facility.

Mr. GRUBB. Yes, sir.

Representative PRICE. All right. How much of that 25 percent would be as far away from the site as Pocatello?

Mr. GRUBB. I wouldn't presume to say; probably a very small portion of it.

Representative PRICE. You say they can absorb in that community right now 25 percent of the new people that would go in there, for permanent residence?

Mr. GRUBB. We estimate in the area around there some 25 percent could be handled. Now, that includes a half a dozen communities, all of which are as large as or larger than Glasgow.

Representative PRICE. But none of them within 50 miles of the site?

Mr. GRUBB. They are for the most part within 50 or 60 miles; yes, sir.

Senator ECTON. What are some of the other factors that you made the final decision upon, Mr. Grubb?

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Senator HICKENLOOPER. I think it would be helpful if you would just take this list and go right down, in each category, stating why the rating was made.

Representative PRICE. I think you skipped over a few. We were on drainage, and then we got into social factors.

Mr. GRUBB. Drainage is the next one; the one that we stopped at.

Senator HICKENLOOPER. Is that all right, if they just go down the line that way?

Senator ECTON. That is what we want.

Mr. GRUBB. As I was saying, we were concerned, with respect to drainage, with a catastrophe, not with the handling of the normal discharge from this plant. That will be presumably retained; or, if there is contamination, there would be no problem involved, perhaps, at any place in the country.

In the event of a catastrophe, however, we could visualize the sudden liberation of a large amount of radioactive material. We visualized also that that would present a very serious hazard to the Missouri-Mississippi waterway, since the Fort Peck area, the dam, is well up along the waterway.

Now, at Pocatello, the occurrence of such a catastrophe would produce material which would drain off into the ground.

Senator ECTON. Do they not have underground rivers and streams in that Idaho territory?

Mr. GRUBB. That is right. The lava underneath is honeycombed, and porous and broken up, and carries a great deal of water.

Senator ECTON. Well, would that not be dangerous?

Mr. GRUBB. It would, to some extent. However, because of the time factor, through which the water is held in the ground, the effect would be minimized, since a lot of dilution could occur before it would appear many miles downstream from the occurrence of the catastrophe.

Senator HICKENLOOPER. Is not the land there in Idaho composed of a cracked-lava formation?

Mr. GRUBB. In some places lava is exposed, and in others it is covered with 5, 10, 20, or 30 feet, in places, of sand and clay.

Senator HICKENLOOPER. I just mean that this water goes right down through the lava until it hits bedrock formation, and then washes off into another stream.

Mr. GRUBB. It presumably would join the underground water table, which moves in a southwesterly direction at a very slow rate of speed. The discharge of radioactive material into it would be diluted many times in the period of the years before it would be discharged into any open stream.

Senator HICKENLOOPER. What technical advice did you have on that within your organization in order to be able to evaluate how rapidly or how slowly radioactive substances would be dissipated in the ground? Did you have anybody in your organization capable of making that kind of analysis?

Mr. GRUBB. I would say "no." However, that was not precisely the question here. In one case, we were concerned with a soil which did not absorb anything, but which was conducive to a very rapid run-off, because the surface of the soil at Fort Peck is pretty impervious. In this gumbo clay, the run-off would be pretty rapid. In the other case, we had a soil of a condition which permitted the water, or whatever

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material it was, to go directly down and not spread out over a large area.

Senator HICKENLOOPER. But what I am trying to get at is what reliable evaluation of the qualities of radioactive material that might in some catastrophe be dumped on this ground was at your disposal. Did you have somebody in your organization capable of evaluating that, and saying that there was any more danger when surface water runs off into a stream than when surface water soaks down through the ground? Do you know whether the soaking through the ground will in fact filter out radioactive materials out of water?

Mr. GRUBB. We don't know. I don't know that anybody could answer that question specifically.

The CHAIRMAN. Wait a minute. Maybe it can be answered. [Reading:]

In the event of the falling apart of a reactor, fission products and primary fuels will be scattered some distance. At Arco this material will percolate into the lava beds—

I might say I am reading from a memorandum. I do not endorse it as to accuracy, except that it comes from someone who has some qualifications.

At Arco this material will percolate into the lava beds and reach the Snake River 75 years later, according to the Smith Hinchman & Grylls report.

Senator HICKENLOOPER. Seventy-five years?

The CHAIRMAN. Yes.

according to the Smith, Hinchman & Grylls report.

Continuing:

By this time most of the short-lived fission products will have been dissipated, it is true, but the tons of primary fuels, uranium, or plutonium (which are extremely dangerous in even small concentrations when taken internally) will not lose their radioactivity for thousands or million of years. Seventy-five years will have no effect on their potency. How has the Commission decided to control these contaminating products underground where they will be flowing down old channels of the Snake River? What if my previous testimony regarding a show of coliform contamination in the Thousand Springs area proves correct, and fission products only take a very short time to reach the Snake River?

At Fort Peck, the Smith Hinchman & Grylls report has stated that the soil is impervious. That is a distinct advantage to Montana's site. In the event of the falling apart of a reactor there, the fission products and the primary fuels would remain on top of this impervious surface. As the site is on top of a table of land with no water drainage into the area, a simple 2-foot retaining wall would prevent any possible leakage of whatever meager rainfall might occur and the flooding of the area with oil after the catastrophe would insure its protection from any winds. After a few month this area would be a valuable uranium mine which could be worth millions of dollars. The uranium or plutonium could be collected and reused to good advantage, and no danger of any kind would accrue to man or beast.

What do you say to that?

Mr. GRUBB. I think it is an oversimplification of the problem?

Senator MURRAY. You have already stated, though that you did not have anybody in your firm competent to make this analysis.

Senator HICKENLOOPER. That 75-year business is what surprises me. How far is it from the Snake River?

Senator MURRAY. It is a very short distance. I do not know the exact mileage. Does anybody here have that?

Mr. GRUBB. It is about 150 miles.

Senator MURRAY. It would not take 75 years to go that far, I should think.

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Representative MANSFIELD. Following up the same question which you raised, and maybe quoting the same individual, according to the Montana Standard of May 1, 1949, Mr. R. L. Ewing, highway commission district engineer at Wolf Point, Mont., informed Mr. T. J. Hocking, Glasgow publisher, that—

all of southern Idaho could be endangered by radioactive waste waters—

I will give the remainder of this material to the reporter for insertion in the record.

(The material supplied is as follows:)

According to the Montana Standard, May 1, 1949, Mr. R. L. Ewing, highway commission district engineer at Wolf Point, informed Mr. T. J. Hocking, Glasgow publisher, that "all of southern Idaho could be endangered by radioactive waste waters which the Atomic Energy Commission claims would be dumped down cracks in lava beds at the Arco, Idaho, site of the AEC's atomic reactor plant."

Mr. Ewing contends that "radioactive waters could be controlled easily at the proposed Glasgow site by low reservoirs, where gumbo bottoms are impervious and water would not seep away."

I request the committee to check a statement carried in the Montana Standard, April 24, 1949; Great Falls Tribune of May 1, 1949, and the Glasgow Courier to the effect that "the Montana area was rejected as the site for the atomic reactor station partly because a report declared there was danger from earthquakes and floods."

This statement is in the report of Smith, Hinchman & Grylls, the industrial engineers, who surveyed the various sites for the Atomic Energy Commission. There is, of course, no foundation of fact in this statement by the industrial engineers but I am calling it to the attention of the committee and requesting, in behalf of the people of Montana, information as to why and how this conclusion was arrived at.

Senator HICKENLOOPER. Mr. Chairman, if I may suggest, we are getting into this question of contamination. I believe it ought to be emphasized that if there were any real anticipated danger of contaminations or blow-ups or anything of that kind, we would not be building these plants with nearly so much freedom. The fact is that the contamination in the ground that we are talking about is only the almost unforeseeably remote possibility that some accidental thing might happen. The probability is extremely remote, and I do not think we would urge reactor plants being built at either of these sites if it was going to contaminate the ground for miles around.

Senator MURRAY. It is a well-known maxim that the impossible sometimes happens.

Senator HICKENLOOPER. The only reason I said this is that I thought maybe we might be in our conversation creating a suggestion, Mr. Chairman, that there was great danger. The danger is in fact extremely remote. It is one to be considered, of course.

Senator MURRAY. I understood there were a lot of springs in this area, there, and they do not know where the spring water comes from.

Now, if these radioactive particles are going to get into those springs, what is going to happen down there? It seems to me that is a pretty serious problem. That is a well-known fact: that there are all kinds of springs in that neighborhood that are used by the people there.

Did you get any information about that?

Mr. GRUBB. That there were springs there?

Senator MURRAY. Yes.

Mr. GRUBB. Certainly. We know they are there.

Senator MURRAY. Then what about the danger of contamination of those springs as a result of these radioactive particles?

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Mr. GRUBB. The best information we could obtain, I will say first, is that the rate of flow of the water through the ground is very slow. According to the best sources of information that we have, the average is perhaps a half mile a year. In the event of a catastrophe, such fissionable products might be expected to join the underground water table and flow through these natural outlets, the springs along the banks of the river, and at the same time considerable dilution would occur and the effect would be greatly minimized.

The CHAIRMAN. Senator, I think Senator Hickenlooper is entirely correct in insisting that the probabilities of any contamination due to catastrophe, to which, of course, we are directing our attention, are very remote. The big point to me is that drainage has been listed as one of the factors. It turns out that it is a very slight factor indeed.

Of course, we do not know what percentage, if any, was allocated by you to this factor, as a percentage of your decision; how you weighed it. But certainly as to your rating of "fair" or "good," it did not weigh very heavily in your decision and recommendation.

Mr. GRUBB. Perhaps not too strongly. I think it should be said again, as was the case with security, that we did not consider ourselves wholly competent to judge this, and the Commission itself would have to weight it in any manner they saw fit. How heavy a weight they placed on it, I do not know.

Representative DURHAM. Did you visit any of the other plants that are operating at the present time?

Mr. MACKENZIE. I have been to two of them, but not from the standpoint of studying or learning anything about them. I merely saw the office at the gate, and that is about all. We are not familiar with the internal lay-outs.

Representative DURHAM. It probably would have been helpful to you in deciding some of these factors, because we have had drainage problems, and we have had contamination problems, and so far we have had no accidents.

Mr. GRUBB. That is right, sir.

The CHAIRMAN. Mr. Grubb, in an effort to speed this thing up: Who made this listing of these factors? Who listed these factors for you to arrive at a formula? Yourselves?

Mr. GRUBB. I think it can be said that we prepared this list from a list of factors that was specifically mentioned in the contract under which this work was performed.

The CHAIRMAN. Well, let us quickly go through the list for the factors that you adjudge to be of importance. Isolation certainly is one.

Mr. GRUBB. And climate.

The CHAIRMAN. Climate. Security is out, because you were not competent. Climate, you think, is important. Geology?

Mr. GRUBB. Yes.

The CHAIRMAN. That is important. Drainage?

Mr. GRUBB. I think it is important; yes.

Senator HICKENLOOPER. I have marked drainage off my list, Mr. Chairman, because they say that they are not competent to judge the drainage factor.

The CHAIRMAN. I think you are right. Water supply?

Mr. GRUBB. That is important.

The CHAIRMAN. Well, they are both marked "very good," so we can mark that out.

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Mr. GRUBB. It is even.

The CHAIRMAN. Manpower?

Mr. GRUBB. It is very important, but neither one had a very high rating.

Senator MURRAY. We can furnish all the employees you want. We did at Fort Peck; 20,000.

The CHAIRMAN. Let us continue the list, and then go back.

Senator HICKENLOOPER. I wonder if he would care to specify why he listed one in one way and one in another?

Mr. GRUBB. I would like to make a comment on the offer of the Montana people to supply all the labor needed in this project. It is anticipated that a labor total of some 10,000 people will be required in the construction of this plant, construction people. The Labor Department records for the State of Montana show approximately that number of construction people for the entire State, and within a 200-mile radius of Glasgow there are available less than 4,000 construction workers.

Senator MURRAY. But we have them in the State of Montana, and we are accustomed to traveling out there, so a little distance of a few hundred miles to get a job is not going to hurt anyone.

Mr. GRUBB. I think the point is that the total number of construction workers available within the State is barely in excess of the amount that would be required for this project.

Representative PRICE. Does not the construction contractor bring the workers in from all over the country?

Mr. GRUBB. Most assuredly. And we recognize that both places will have to draw on distant points for their labor supply.

The CHAIRMAN. Then why did you make it "poor" in the case of Fort Peck and "fair" at Pocatello?

Mr. GRUBB. Pocatello has a larger number of construction workers resident within a 200-mile radius of the site, approximately two and a half times as many as are available within the corresponding radius around Glasgow.

The CHAIRMAN. How many in the 200-mile radius?

Mr. GRUBB. At Pocatello? About 10,000. At Fort Peck, less than 4,000.

Furthermore, Salt Lake City, which is a fairly large city, is about 200 miles distant, or slightly over.

In addition, within a radius of a hundred miles around the Pocatello site, there are a fairly large number of fair-sized communities.

Senator ECTON. Did you confer with the heads of the labor organizations in Montana on this labor situation?

Mr. GRUBB. I believe we did.

Senator MURRAY. Did you contact the State unemployment compensation commission?

Mr. GRUBB. I believe we did. I won't be specific, though. I can't be.

Senator MURRAY. They made a serious study of the labor sources, and guaranteed 10,000 workers, and we now have on the unemployed rolls in Montana three or four thousand people.

Mr. GRUBB. Perhaps so. But surely they are not all construction workers. The nature of the industrial work in Montana and in Idaho, too, perhaps, is that it is dependent to some extent on agricultural production, and such work is necessarily seasonal. Perhaps later

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in the year, when agricultural products are being processed, you won't have such a large number of unemployed?

Senator MURRAY. I cannot see that that is an important factor, because whenever we have had occasion to require a great number of workers for a project, we have had no difficulty in getting them. We have 3,000 working up at Hungry Horse Dam now.

Representative MANSFIELD. And we will have pretty close to a thousand at Canyon Ferry very soon. We have a surplus of labor in the Hungry Horse area. We can take care of them. They are construction people who have come in looking for jobs, and of course, as far as the situation at Glasgow-Fort Peck is concerned, we would have no trouble at all getting the necessary labor.

Mr. GRUBB. I think you could make the same general sort of statement about Pocatello.

Senator MURRAY. Then it ought to be a 50–50 proposition here.

Mr. GRUBB. On the basis of the survey, Pocatello is far superior.

The CHAIRMAN. How about materials?

Mr. GRUBB. I would say in regard to materials that we don't know, except in a general way, what is going into this plant. Cement, steel, concrete aggregate, and the like are certainly going to be used in large quantities, as well as steel in many forms—pipe, fence, reinforcing steel, and structural steel. For most of those items there are points of supply closer to Pocatello than is the case with Fort Peck.

Consider for a minute a couple of them. The source of supply for concrete aggregate for the Fort Peck Dam was Cole, Mont., which is some 40 miles or so from Glasgow, I believe it is.

Senator MURRAY. I understand at the last hearing a statement was submitted showing the access to raw materials that will be needed in this work. I have no recollection of what the facts are, but they are in the record here.

Mr. GRUBB. I don't know that we have had time to read your exhibits too carefully, but let me say that in the case of the Fort Peck Dam the aggregate was taken from Cole, Mont., from the deposit at Cole, Mont., some 40 miles distant from Glasgow. At Pocatello aggregate is available substantially on the site. Within the area there are numerous pits where gravel has been screened and is being used. All the gravel that was used in the Navy installation was obtained locally and on the site.

Representative MANSFIELD. What about cement?

Mr. GRUBB. Cement? We were informed by the cement plant at Trident, which is the obvious source of supply for the project at Fort Peck, that they are pretty well tied up. They are committed to the Hungry Horse Dam for the next 2 years.

Representative MANSFIELD. We have a cement plant at Lewistown, as I recall, and also Henry Kaiser came into Montana last year in the vicinity of Helena. He is contemplating setting up a $6,000,000 plant for the manufacture of cement.

Mr. GRUBB. Perhaps so. Those plants don't produce too much cement.

Representative MANSFIELD. But he has a lease on all the ground and he is a go-getter and he could put the stuff out if there was a market for it in Montana.

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Mr. GRUBB. Be that as it may, building that is not an overnight job, and we were concerned with sources of supply—existing sources of supply.

At Idaho, there is a plant at Inkom, which is just outside Pocatello—quite a bit closer.

Senator MURRAY. We had an expert here at the hearings we held a short time ago, Mr. Brown, who said that all of these materials would be supplied more easily and cheaply at Fort Peck.

Mr. GRUBB. I don't think that is a fair statement of the facts.

Senator MURRAY. I beg your pardon?

Mr. GRUBB. I don' think that is a fair statement of the facts. I don't think that is quite true.

Senator MURRAY. You think this man, Mr. Brown, was not telling the truth at that time?

Mr. GRUBB. Perhaps he was mistaken.

Senator MURRAY. He certainly impressed us as being a man who knew what he was talking about. He was familiar with the conditions around there, and spent a great deal of time in that area, whereas you people have only spent a few hours at Fort Peck and Glasgow.

Mr. GRUBB. Or days.

Senator MURRAY. It seems to me that a man who lives in that area and has reason to know these facts would be more reliable than someones who comes from Detroit, Mich.

Senator ECTON. Is it not the truth, Mr. Grubb, that to have written this report you would not even need to have gone to Glasgow or Fort Peck?

Mr. GRUBB. No; I don't think so. It is not true.

Senator MURRAY. Well, your trip to Glasgow did not do you any good. Here is an affidavit from Montana that says:

Paul J. Campbell, of Glasgow, Mont., being first duly sworn on oath, deposes and says:

That he is now, and for more than 10 years immediately prior to signing this affidavit has been, the manager of the Glasgow Hotel, of Glasgow, Mont.; that affiant further declares that the registration cards appearing below and bearing the respective names of Frank L. Couch, of Detroit, Mich., and Donald H. Maxwell, of Chicago 6, Ill., are exact copies of the original registration cards appearing of record in the files of said Glasgow Hotel; that affiant made the said copies appearing below herein.

So here are the registration cards, which show that you were there for 1 day, on the 13th of January. And the climatic conditions were such that you were unable to visit the actual site of the project.

I have another affidavit here from Montana by Mr. Charles E. Myers. It says:

That affiant is now, and has been for more than 2 years, the manager of the Texaco service station located at Fort Peck, Mont.

That on or about the 13th day of January 1949, a certain Mr. Donald H. Maxwell hired affiant to drive him from Fort Peck, Mont., to a place Mr. Maxwell referred to as "the Willow Creek area"; that at about 9 a. m., on said day, affiant and Mr. Donald H. Maxwell left Fort Peck, Mont., by automobile and followed the route set out by affiant in red pencil on the attached map; said map bearing affiant's signature, and herewith incorporated as a part of this affidavit; that affiant and Mr. Maxwell returned at noon of said day.

That at no time during the afore-mentioned trip did affiant drive Mr. Maxwell north of the route set out in red pencil on said map, nor did Mr. Maxwell request him to do so; that when affiant had driven Mr. Maxwell to the vicinity indicated by the most southwestern red dot on said map, he was instructed by Mr. Maxwell to return to Fort Peck, for they had "gone far enough."

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And the map shows that you have not reached the site of the so-called project.

Mr. GRUBB. How do you know what the site is?

Senator MURRAY. Well, the site is marked right here on the map, where they are proposing to locate it. Here it is right here.

Mr. GRUBB. Where does that information come from, sir?

Senator MURRAY. It comes from the people in Fort Peck who were undertaking to show where this site could be located on Government land.

Mr. GRUBB. Substantially all of that enclosed within your red line is Government land?

Senator MURRAY. Yes.

Mr. GRUBB. The specification for the site location, I am quite sure, however, is in error.

Representative PRICE. How much actual time has been put into this survey?

Mr. GRUBB. How much time?

Representative PRICE. Yes.

Mr. GRUBB. That is difficult to answer. We have had somewhere around 15 people for 2½ months.

Senator HICKENLOOPER. How much actual time was spent in Montana, by anybody? I mean in connection with this.

Mr. GRUBB. Three people drove within the general site boundary.

Senator HICKENLOOPER. How much time did they spend there?

Mr. GRUBB. At least a day, and some of them 2 days, but I cannot now remember and state definitely.

Senator HICKENLOOPER. How much time was actually spent on the ground of the proposed site in Idaho?

Mr. GRUBB. About the same.

Senator MURRAY. You have included a map or plat in the record here, which purports to show the location of the site.

Mr. GRUBB. It shows the site boundary.

Senator MURRAY. The site boundary. And this plat that I am showing you here is right at that point where you assumed the site should be located?

Mr. GRUBB. That was an assumed center of the site, I believe, which we had to use for purposes of establishing characteristics of the area within certain radii of that point. That point does not indicate that a reactor or a number of reactors would be erected at that location. Presumably they would be spread throughout the area.

Senator MURRAY. But it would be in that immediate vicinity?

Mr. GRUBB. Not necessarily, sir.

Senator MURRAY. Where would they be then?

Mr. GRUBB. Anywhere within that area.

Senator MURRAY. Anywhere within the area. Anywhere within this area that is marked on your plat?

Mr. GRUBB. Within the whole large area. That is right.

Senator MURRAY. And that entire area is in the vicinity of Glasgow?

Mr. GRUBB. Correct.

Senator MURRAY. And it is the place where you went to investigate and were not able to investigate because of the climatic conditions, the snow on the ground?

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Mr. GRUBB. There are many things which you can determine about an area, which you can learn regardless of whether it is covered with snow, or raining, or the sun is shining.

Senator MURRAY. I see.

Senator HICKENLOOPER. Mr. Chairman, at this point, in view of the statement that the witness made that 1 day was spent in the vicinity of Fort Peck, or maybe 2 days, and that about the same time was spent in the vicinity of the location at Idaho, it seems to me that there should be some criticism directed at somebody who will take a survey of 1 day, or 2 days at the outside, at a place where we are proposing to build installations of great permanence, and that will cost millions upon millions of the public money.

I am not saying that the survey did not spend adequate time there, necessarily, but it seems that the physical examination of the ground at each place was certainly a lick and a promise. Maybe it was not. Maybe my criticism is unfair. But it certainly indicates an extremely short time to examine two tremendous areas with all the factors of geology and drainage and all the other matters involved, upon which a decision for millions of dollars worth of installation of a vital public project is based.

Mr. GRUBB. I think my remarks were not completed, sir.

Senator HICKENLOOPER. I am sorry.

Mr. GRUBB. I was saying that three of our people went within the site boundary, insofar as they were able to, considering the weather.

Senator HICKENLOOPER. Well, right there: How much time did they spend within the site boundary?

Representative PRICE. And what were their qualifications? Were they engineers?

Mr. GRUBB. Geologists and hydrologists.

Senator HICKENLOOPER. How much time did they spend within the site boundary?

Mr. GRUBB. Each one, the better part of a day.

Senator HICKENLOOPER. Did they go in there separately, or together?

Mr. GRUBB. I think they went in together, or at least in two parties.

Senator MURRAY. Were they driven in by this man who makes this affidavit here?

Mr. GRUBB. I do not know.

Senator HICKENLOOPER. There was the better part of a day spent within the site boundary by perhaps three men at the Fort Peck area?

Mr. GRUBB. That is right.

Senator HICKENLOOPER. How much time was spent within the site boundary, or the proposed site boundary in Idaho, and how many men were there?

Mr. GRUBB. About the same amount of time.

Senator HICKENLOOPER. So that the better part of a day was spent looking over the general physical site of the area in Idaho.

Mr. GRUBB. Yes.

Senator HICKENLOOPER. Then I withdraw my statistics in my calculation of a while ago, and I will say that it is even less time than I thought to have been spent.

Mr. GRUBB. They were concerned, however, with only one phase of the problem. That was geology and the general topography of the land. Other persons who were concerned with other phases of the problem were also in each of the areas.

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Senator HICKENLOOPER. As I understand it, the snow was on the ground up there, was it not?

Mr. GRUBB. That is right.

Senator MURRAY. Mr. Chairman, I understand that Mr. Shugg of the Commission, and Mr. Warner and Mr. Stearns, the geologists, never went on the ground, never visited the Fort Peck site at all. It seems to me that they should have gone there themselvs and visited the proposed site. It seems to me they were competent people to make a personal investigation of this situation, and that they should have gone there themselves.

Mr. GRUBB. Mr. Stearns was on the site.

Senator MURRAY. Mr. Stearns was on the site? When was he on the site?

Mr. GRUBB. At about that time.

Senator MURRAY. My understanding is, from the last hearing, that none of them were on the site.

Mr. GRUBB. I do not recall that point being raised.

Senator HICKENLOOPER. Mr. Johnson, on behalf of the Commission, made a survey in the Fort Peck area.

The CHAIRMAN. Well, gentlemen, we have covered the social factors, have we not? There has been some discussion about the recreational factors. Now, on the matter of the land, since it is very good for both of them, that would seem to be out. Cost would seem to be the next item, in which it is fair for Fort Peck and good at Pocatello.

Senator MURRAY. I do not see how it could be good at Pocatello if it is going to cost the Government more to locate the site at Pocatello. I do not see how you could regard that as good unless spending the public funds unnecessarily is regarded as good.

The CHAIRMAN. Let us have Mr. Grubb give his classification, of course, if he can, as quickly as possible.

Mr. GRUBB. Let's say first that we were familiar only with the general nature of the facilities to be erected. We had seen no drawings at this time. We knew, of course, as we have already said, that large quantities of concrete, steel, reinforcing steel, and the like, were to be used. We formed some idea, within our own organization, and one of our men who was competent at estimating, at judging these factors, went into the field, to discuss with contractors who have worked in both areas, the difficulties which might be encountered, considering the availability of materials, manpower, climate, housing, and the like.

The consensus of all opinions was that the construction would cost more at Fort Peck.

The CHAIRMAN. You made a very exact dollar estimate of the difference, did you not?

Mr. GRUBB. We evaluated those differences as a 9½ percent difference favoring Pocatello.

The CHAIRMAN. Can you give us the list of factors that went into making that estimate?

Mr. GRUBB. Well, certainly. Those factors were labor, availability of construction materials——

The CHAIRMAN. Labor, I should imagine, would be about the same in both places, would it not? Do they work cheaper at Pocatello, than they do at Fort Peck?

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Mr. GRUBB. Published labor records were about the same. The experience was that turn-over of labor was somewhat higher in Montana, resulting in a higher cost.

The CHAIRMAN. That is No. 1. No. 2 was what?

Mr. GRUBB. Availability of construction materials.

The CHAIRMAN. How did you work that?

Mr. GRUBB. That was favoring Pocatello. The third related to excavation. It was felt that the excavation, removal of overburden, was somewhat simpler at Pocatello, and on the other hand at Fort Peck the matter of sealing the freshly exposed shale would be necessary. We rated that item in favor of Pocatello.

The fourth item was nearness to existing railroads and highways.

The CHAIRMAN. That comes under transportation, does it not?

Mr. GRUBB. Well, it is a factor in construction costs.

The CHAIRMAN. Yes, that is right. It would be.

Mr. GRUBB. At Pocatello, the railroad and highway both run through a corner of the site. The construction of roads there is not too difficult, and it would appear that there is some advantage to Pocatello in that case again.

Representative MANSFIELD. May I interrupt, there, Mr. Chairman? Glasgow is on a main line. You have good highways out there. The Arco site is not on a main line, and I do not think your roads down there would compare to what we have in the Fort Peck-Glasgow area. So I do not see where you get the advantage there.

Mr. GRUBB. The roads at Pocatello enter the site right now.

Representative MANSFIELD. What kind of roads are they?

Mr. GRUBB. Well, U. S. 20 from Blackfoot to Arco is a good hard-surfaced road.

Representative MANSFIELD. Is it paved?

Mr. GRUBB. Yes, sir.

Representative MANSFIELD. All right. But you have Arco 87 miles away on a branch line from Pocatello. And Glasgow is right on the main line.

Mr. GRUBB. Perhaps so. I don't think that makes too much difference as to the railroad, though.

Senator MURRAY. We had a rate expert here at the last hearing who testified, and he said there would be a big saving on freight costs by selecting the site of Montana.

Mr. GRUBB. Yes, I recall that he said that. Further anyalysis will not, I believe, prove his case.

Senator MURRAY. I think we would say that with reference to your testimony.

Mr. GRUBB. Perhaps so.

Senator MURRAY. And with reference to your report; and if we got another group of engineers to follow your tracks, I think we could disprove about 98 percent of your report.

Mr. GRUBB. You are welcome to try, sir. I don't believe that would happen.

Senator MURRAY. You would be surprised to see what these experts do to each other. I have had a lot of experience with them.

The CHAIRMAN. Does that conclude your costs statement?

Mr. GRUBB. No, sir. There are several other items. One of them, the fifth item, is the possibility that a construction camp, which is

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located near Pocatello, could be utilized in the present case, was mentioned but not evaluated.

The sixth item is the general character of the site and it was such that it would involve less expense for site clearance and drainage.

Opposed to those items there was one which favored the Fort Peck site, and that was the added expense for excavating lava at Pocatello.

The CHAIRMAN. Did you assign a percentage to each of these factors that aggregated 9½ percent?

Mr. GRUBB. I didn't understand you, sir.

The CHAIRMAN. Did you assign a percentage to each one of these factors that in sum total aggregated 9½ percent?

Mr. GRUBB. That is correct.

The CHAIRMAN. Will you read them and give us the percentage?

Mr. GRUBB. Item 1, labor, was 5 percent, favoring Pocatello. No. 2 was 4 percent.

The CHAIRMAN. What was 2?

Mr. GRUBB. Number 2 was availability of construction materials.

The CHAIRMAN. Four percent?

Mr. GRUBB. Yes. Three, a matter of excavation and sealing of footings, sealing of excavations was 2 percent. Four, relating to roads and highways existing and in the site, was 1 percent. Five was not evaluated. Six related to general character of the site and site clearance and drainage, 1 percent all favoring Pocatello. And item 7, the matter of added expense for excavating in lava was 3½ percent in favor of Fort Peck.

The CHAIRMAN. That makes an aggregate of 9½ percent?

Mr. GRUBB. Nine and a half percent.

The CHAIRMAN. Let us leave transportation for a moment and go to fuel. We will come back to transportation.

How about fuel, now? That is "fair" for Fort Peck, and "good" for Pocatello.

Mr. GRUBB. Our analysis of fuel was based on availability of various grades of coal and the delivered cost. In the cast of Fort Peck, it was found that the lowest-priced fuel on a B. t. u. basis for the quantity of steam required was about $2,800 per day. At Pocatello, the amount of fuel required on the same basis was $2,000 a day.

The CHAIRMAN. Let me read you a short paragraph from this memorandum:

According to the Smith Hinchman & Grylls report the laboratory will need 6,320,000 cubic fet of gas daily.

Mr. GRUBB. Of gas? Yes, sir.

The CHAIRMAN. I suppose that is coal equivalent. Do you not think so?

Mr. GRUBB. I presume it is. I don't know that we made any such statement in the report.

The CHAIRMAN (reading):

For good measure, we have brought in a well which produces 51,500,000 cubic feet of gas daily at a depth of only 1,420 feet. An immediate expansion is going forward improving the total potential of this field, but it can be said now that the nuclear reactor laboratory can have the cheapest, cleanest, and most efficient fuel in America, Montana natural gas, at Fort Peck, Mont.

Do you know anything about that?

Mr. GRUBB. Well, this 6,320,000 cubic feet is the equivalent amount of gas compared to the amount of coal which was required.

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The CHAIRMAN. Mr. Skibbins tells me that field has just been brought into being since the last time we met here on this subject.

Mr. GRUBB. I see.

The CHAIRMAN. I presume, therefore, you did not consider natural gas at all?

Mr. GRUBB. We considered it very briefly. There is a gas line which runs from fields southwest of Glasgow. I guess it is from Sunburst and Shelby over to Williston. That line is overloaded, and we didn't anticipate taking any service from that line for the reactor station.

The CHAIRMAN. You mean at Arco?

Mr. GRUBB. At Fort Peck.

The CHAIRMAN. At Fort Peck.

Mr. GRUBB. Yes, sir.

The CHAIRMAN. Would the fact that this new field has been brought in, with consequent economy, influence your judgment?

Mr. GRUBB. I don't know, sir. How much is the gas going to cost?

The CHAIRMAN. Well, as to that, I would not know, but they certainly got the production, if these figures are accurate, of 51½ million feet a day, and you are going to use 6,320,000. I suppose that is figured on a B. t. u. coal basis.

Mr. GRUBB. That is right.

The CHAIRMAN. I presume that they would sell the gas for the market rates.

Senator MURRAY. Our rates in Montana are lower than in any other section of the country. We send gas three or four hundred miles in Montana. We bring gas all the way from the northern end of the State down to Butte, Mont., where I live.

The CHAIRMAN. Right now the Commission has a project under consideration for building a gas line at Oak Ridge, costing some $20,000,000. Apparently the Commission gives considerable weight to the value of having that natural gas.

Mr. GRUBB. Is it for the plant or for the residences?

The CHAIRMAN. No; we are bringing it in for the plant. We are not up to $20,000,000 for the residences yet, no.

Mr. GRUBB. Getting back to your question: Before the use of such gas could be evaluated, we would want to know how much it cost.

The CHAIRMAN. I assume that it would be the going market rate. What is the rate? Does anybody here know what the rate is for 1,000 cubic feet?

Mr. SKIBBINS (G. J. Skibbins, industrial consultant, Montana Chamber of Commerce). It is in the low 10 percent of the Nation. I can't give you the exact rate now, but I know it is in the low 10 percent of all the gas rates of the United States.

Mr. GRUBB. In evaluating the gas here, we assumed an estimated cost of 50 cents a thousand feet.

The CHAIRMAN. Of course, I do not know whether it is so or not, but there might be a contract made on the basis of using 6,000,000 cubic feet a day.

Mr. GRUBB. That is possible, sir.

The CHAIRMAN. That would be highly advantageous.

Mr. GRUBB. Yes.

Senator ECTON. Did your company look into the possibility of obtaining coal at Garrison Dam? I understand that the Army engineers

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have uncovered 6,000,000 tons of good coal there, and they do not know what to do with it. That is not very far from the Fort Peck area.

Mr. GRUBB. Yes, sir. Testimony at the last session of the hearing indicated that that coal could be delivered from Garrison to Fort Peck or Glasgow for about $3 a ton; and on the basis of 500 tons a day it was shown that that would cost $1,500, which would be less than the fuel cost at Pocatello.

Senator ECTON. Less? You mean less than at Pocatello?

Mr. GRUBB. Yes. That is on the basis of the freight cost only. However, I presume that coal is lying on the ground or in the ground somewhere, and that somebody is going to have to pay for taking it out and putting it in cars and grading it and cleaning it and washing it, or doing whatever else is necessary. And before it is done, the 500 tons a day are going to be dissipated and some more put back in, in order to deliver coal at Fort Peck.

Senator HICKENLOOPER. What is the cost of delivering coal at the Idaho site?

Mr. GRUBB. Well, it is a little difficult to answer that, because the B. t. u. value of the coal available at each of the places is not the same.

Senator HICKENLOOPER. The transportation costs ought to be the same.

Mr. GRUBB. It won't be, no. On the basis of a certain number of B. t. u.'s delivered, we anticipate that the cost for fuel, for coal, at Pocatello, would be approximately $2,000 a day. That is taking it from the most economical source. At Fort Peck, the coal, from the most economical source, is $2,800 a day.

Senator ECTON. Did you make any inquiry as to the coal-strip mines there in Montana, south of the Fort Peck site? Those are the most efficient mines in the whole world.

Mr. GRUBB. Yes, we did.

Senator ECTON. It is a fine grade of coal. What did they offer to supply?

Mr. GRUBB. I don't now recall. It does not appear here, and I assume that it was somewhat higher than the other minimum cost.

Senator ECTON. But you did go into that?

Mr. GRUBB. Yes.

Representative MANSFIELD. This is the coal mined by the Northern Pacific Railroad at Colstrip south of Forsyth?

Mr. GRUBB. That is the one. It is in the southern part of the State.

Senator HICKENLOOPER. How far are the deposits where you would get the coal?

Mr. GRUBB. The nearest source is less than 200 miles, I would estimate.

Senator HICKENLOOPER. How far is this source of coal uncovered by the Army engineers in Montana from the site?

Mr. GRUBB. Well, it is difficult to say. Some is between 250 and 300 miles.

Senator HICKENLOOPER. Some place between 250 and 300 miles?

Mr. GRUBB. Yes.

Senator MURRAY. From Garrison to Glasgow?

Mr. GRUBB. Yes.

Senator MURRAY. It is not any such distance from Fort Garrison to Glasgow. I think it would be in the neighborhood of 200 miles.

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Mr. GRUBB. It is 170 miles to Williston, or a little better, and from Williston to Glasgow by rail must be another 100 miles.

Senator ECTON. Mr. Chairman, if I may, I would like to ask Mr. Grubb another question on this coal at Colstrip.

Your chart opposite page 143, I believe, does not show that you ever contracted the Colstrip people to get a price, does it?

Mr. GRUBB. Yes. I don't now recall why this wasn't filled in. I do now recall that we did contact the Colstrip people, however.

Senator ECTON. I question it, for the simple reason that it is blank.

Mr. GRUBB. I can see why you question it. I can assure you that that contact was made. I don't now remember why the data was not filled in.

Senator ECTON. You do not remember what the offer was?

Mr. GRUBB. I beg your pardon, sir?

Senator ECTON. You do not remember what the price was?

Mr. GRUBB. No. It was more than the minimum cost from Carbon County, Mont., however.

Representative MANSFIELD. May I ask the gentleman a question?

On the basis of the information brought out about these new coal deposits at Garrison, plus the fact that we have a great deal of electric power at Fort Peck, that would seem to indicate to me that as far as both hydro- and steam-plant facilities are concerned, there would be plenty of power at Fort Peck to take care of this project.

Getting back to the gas situation, does not the new gas field at Roundup, available at low rates, change all of the fuel costs in favor of the Fort Peck area over the Arco site?

Mr. GRUBB. Not necessarily. We don't know anything about the low rates. Furthermore, there is no steam power at Fort Peck.

Representative MANSFIELD. No; but you could create steam power through the building of a plant and the bringing in of this coal which is being dumped, at the present time, because there is no market for it, at the Garrison Dam site.

Mr. GRUBB. We could do many things. Again, let us get back. We were judging these sites on the basis of what is there now.

Representative MANSFIELD. That is true.

Mr. GRUBB. As far as power is concerned, there isn't the tremendous surplus of power at Fort Peck, either, that perhaps you would have us believe.

Representative MANSFIELD. Well, I disagree with you there, because there is a surplus of power at the present time which is under lease to the Montana Power Co. on a temporary basis, but all of that could be used for the construction and maintenance of this plant, and we could be able to generate well in excess of 85,000 kilowatts of power at that site.

Mr. GRUBB. Well, do you wish to discuss power now, Mr. Chairman?

The CHAIRMAN. I think so. As to electrical power, of course, there is not much use in going into it, because you listed it "very good" in both places.

Representative PRICE. But you give the preference to Pocatello?

Mr. GRUBB. On the basis of rates.

Senator ECTON. Where did you get that rate at Pocatello?

Mr. GRUBB. About the same place we got the rate at Peck.

Senator MURRAY. The Fort Peck rate is a Government rate?

Mr. GRUBB. Fort Peck? Five and one-half.

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Senator ECTON. What was it at Pocatello, that you figured?

Mr. GRUBB. Let me say first that there were a number of statements made about the capacity of the Fort Peck Dam. Presently there are 50,000 kilowatts installed, two units, one 15,000 and the other 35,000. And a contract has just been let for another 35,000 unit, which will bring the total, some 2½ or 3 years hence, up to 85,000. Now, that is designed maximum capacity for the Fort Peck Dam. In order to attain this figure of 105,000, it will be necessary to tear out an existing 15,000-kilowatt unit and replace it with a new one.

Senator MURRAY. No, we are building another project at Canyon Ferry, which would be concluded about the time this would come in.

Mr. GRUBB. Well, as near as I recall, it was stated pretty definitely that plans were made, already made and perhaps already in progress, for installing 105,000 kilowatts at Fort Peck. I think that is in error, and might well be cleared up. I do not think that is the case.

Representative MANSFIELD. As I understand the Fort Peck power picture, that is what is contemplated to finally get the full hydro benefit out of that dam, 105,000 kilowatts of power.

Mr. GRUBB. That appears to be the maximum potential at that point. Perhaps it might be a little more. There is some difference of opinion.

Representative MANSFIELD. Surely that is more than enough power to take care of this atomic plant.

Mr. GRUBB. It is if you forget the purpose for which the dam was built. The dam was built to supply power for irrigation, and by 1953, I guess it is, or thereabouts, the irrigation load is expected to be some 55,000, as I recall. Yes. Commitments for irrigation are expected to exceed 55,000 kilowatts by 1953.

Furthermore, in the meantime, Fort Peck is intended to supply power for construction to Garrison Dam, and Garrison won't come in for another 5 or 6 years, I guess. Admittedly, Garrison is a very large project. But in the meantime, it is going to be a drain on the Fort Peck system; not an aid.

Senator ECTON. Why did you worry about how much power there was, when Mr. Shugg, I think it was, of the Atomic Energy Commission, and Dr. Raver, both told us that for the first 2 years that new plant in Idaho would not need over 4,000 kilowatts?

Mr. GRUBB. That is right.

Representative MANSFIELD. Which would be supplied through Diesel engines.

Senator ECTON. Yes, if necessary.

Mr. GRUBB. For the first few years, admittedly the power demands are going to be low. However, we had to hang our hat on something, on which to judge this thing, and to see how well it met the requirements.

Now, it is anticipated that the ultimate requirements for the project will be in the order of 70,000 kilowatts.

Senator ECTON. After it is constructed and operating?

Mr. GRUBB. After it is constructed and operating. It is fairly uncertain, but we look forward to it in a matter of 6 or 7 years.

Senator ECTON. In determining the cost, what did you figure the kilowatt rate in Idaho to be, as compared with the Montana rate at Fort Peck?

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Mr. GRUBB. We figured in Idaho the power would carry a rate of 3½ mills per kilowatt.

Senator ECTON. Did you get that from Idaho Power?

Mr. GRUBB. We got that from the Department of the Interior.

Senator ECTON. The Department of the Interior does not have any electricity there now?

Mr. GRUBB. They have some. It is all marketed through Idaho Power Co., as I recall.

Senator ECTON. Well, not that much, to take care of 60,000 or 70,000 kilowatts, surely.

Mr. GRUBB. That is true. Not at the moment, at any rate. On the other hand, they, too, have a lot of projects there planned, and some under construction, and more to be started.

Senator MURRAY. That is on the basis of those projects that will be developed later on, that you get the idea that you can get the power cheap, then?

Mr. GRUBB. Well, we recognize that the Federal power program is being expanded, and that any large Government demand is bound to be supplied, either directly by Federal power, or by Federal power transmitted over privately owned transmission lines. And so the rate established by the Federal power authorities, the Department of the Interior and its branches, is bound to govern the rate at which power will be charged to this project.

Senator ECTON. So this three and a half mill rate is based on figures submitted by the Bureau of Reclamation?

Mr. GRUBB. Yes. Well, the Department of the Interior, Bureau of Reclamation.

Senator ECTON. On power that has not even been developed yet?

Mr. GRUBB. Yes. They also made the same statement at Fort Peck: On power that isn't developed yet. They further went on to say that there would always be a rate differential of about 2 mills between power at Fort Peck and power at Pocatello, the difference being that the dams are somewhat less costly in the Idaho area and the transmission lines are generally somewhat shorter. The centers of use are larger. Certainly we could not ignore those factors.

Senator MURRAY. Did they make a written statement of that character?

Mr. GRUBB. Yes, sir.

Senator MURRAY. Where is it? In your records?

Mr. GRUBB. I don't believe we have it.

Senator MURRAY. But you have a written statement from them offering to give you the power at that rate?

Mr. GRUBB. I don't believe that that is what the written statement said. The written statement said that there would always be a difference in rate of about 2 mills between Fort Peck and Pocatello, and that Pocatello would be the cheaper.

Representative DURHAM. These are the only two sites you evaluated at all?

Mr. GRUBB. That is right.

Representative DURHAM. That is, the only ones you were asked to evaluate by the Commission?

Mr. GRUBB. Yes, sir.

Representative DURHAM. The policy has been, of course, that you establish these plants where the power is already available. That

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has been the policy to begin with. It looks like we are departing from a policy here that has been pretty well established.

Mr. GRUBB. I would not presume to answer the question you raised. However, power is short throughout the Pacific Northwest, as you probably well know.

Representative DURHAM. Fuel and power are highly important in the operation of these plants?

Mr. GRUBB. Yes, sir.

Representative DURHAM. It is an important factor.

Mr. GRUBB. It certainly is.

Senator ECTON. Mr. Chairman, what I wanted particularly to bring out is this: We want to find out where they got this 3½-mill rate. At some of these hearings I understood that they had it from the Idaho Power Co. I sent a wire to the Idaho Power Co., and they sent this back. They said:

> Our company has publicly announced both its willingness and availability to furnish power requirements for new atomic plant. Ultimate rate depends upon size of load, annual load factor, delivered voltage, and other service conditions, regarding which final engineering information not yet available.
>
> IDAHO POWER CO., *Boise, Idaho.*

So, what I am getting at is that this 3½-mill rate was a rate which is merely in the making.

Representative D'EWART. Will the Senator yield to me?

I think it was brought out earlier in this hearing that Bonneville Power had no intention of serving this plant, and this is a Bonneville rate that has been quoted.

Mr. GRUBB. That might well be true. I think that Bonneville looks upon the Snake River and the Columbia River Valley more or less as one system. But, in any case, those are the figures on which we had to work. Now, we were as unsuccessful as you were, Senator Ecton, in getting any statement as to rates out of any of the private power companies, whether it was Montana, Idaho, or Utah. They just won't talk until you know definite figures, as to quantity and the manner in which the load will develop.

Representative PRICE. Specifically, who would furnish the power to the Pocatello site, the Idaho site?

Mr. GRUBB. Two private companies are in there now, Idaho and Utah.

Representative PRICE. And you would have to get the power from them?

Mr. GRUBB. That is correct, sir.

Representative PRICE. And they have not given you any rate?

Mr. GRUBB. No, sir.

Representative PRICE. Where does the 3½-mill rate come in?

Senator ECTON. The only possibility, it seems, would be to build a line from Spokane into Pocatello, about 600 miles, or bring it from Hungry Horse down through Montana to Pocatello, about 400.

Mr. GRUBB. Well, within the territory covered by the Idaho Power Co., there are, I guess, sites having potential capacities of well over a couple of hundred thousand kilowatts.

Representative PRICE. Mr. Grubb, you said that power was very good at both Pocatello and Fort Peck. You said the difference, the reason you concluded that you preferred Pocatello over Fort Peck, was on the matter of rate. But you say now that you do not have any

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rate for the Idaho site. So, how could you establish a preference on the basis of rate?

Mr. GRUBB. We recognize that the public power will be expanded and that most assuredly public power would ultimately be used in this project. Now, the rate for public power at these two locations, we are informed by the Department of the Interior, is going to carry a differential of 2 mills.

Representative MANSFIELD. Would the gentleman yield there?

In response to the question raised by Senator Ecton, as I interpret it, the implication was made that there was a possibility that power from Hungry Horse would go down to this proposed plant at Arco if it is located there.

I want for the record to emphatically and unqualifiedly deny that that will be the case, and to call to the attention of the committee a letter which I inserted in the hearings 2 or 3 weeks ago, dated March 29, as follows:

DEAR CONGRESSMAN MANSFIELD: At the meeting you attended with the Montana delegation at the Commission offices on March 22, certain questions relative to the AEC power requirements for the proposed reactor test station were discussed.

You will recall it was stated at that time that we planned to obtain the power for the station from generating equipment installed at the station and from the Idaho Power Co., which will be supported by the plants of the Bureau of Reclamation, either existing or under construction in the Snake River Basin in Idaho.

As you know, the Idaho Power Co. purchases some power from existing plants operated by the Bureau of Reclamation and by the Montana Power Co. Both the Idaho Power Co. and the Bureau of Reclamation have new plants and facilities under construction along the Snake River in Idaho, which we believe will be adequate to meet our needs projected over the next several years.

I am further advised by my staff that we have not entered into negotiations with the Bonneville Administration for power for the test station. We do not plan to obtain power from the Hungry Horse project or from the Montana Power Co. Furthermore, we do not expect to require special transmission facilities to bring in out-of-State power to the test station.

Very truly yours,

UNITED STATES ATOMIC ENERGY COMMISSION,
DAVID E. LILIENTHAL, *Chairman.*

So, I hope that that letter will lay some of the statements at rest, because, as far as I am concerned, I am not boosting these transmission lines, nor the Hungry Horse, nor any other project in Montana, for the purpose of using our power in Oregon, Idaho, Washington, or Utah. Montana power should be used in Montana only, for the development of our State, and that is my contention; and, as far as I am concerned, this power is not going down into Arco.

Mr. GRUBB. Mav I ask a question, sir?

Representative MANSFIELD. Surely.

Mr. GRUBB. Are public funds used for the construction of the dams?

Representative MANSFIELD. Yes.

Mr. GRUBB. Then certainly the public has some right to use the power.

Representative PRICE. Reclamation, however, is more or less of a loan proposition. The people in the area pay that back into the Treasury.

Mr. GRUBB. Whoever uses the power pays for it.

Representative PRICE. That is right.

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Representative MANSFIELD. But the people of Montana are the ones who are going to pay for these projects, and they are the ones who are going to get the use of the hydroelectric facilities.

Mr. GRUBB. If they use it all, then presumably they are going to get it.

Representative MANSFIELD. We will use it all and a lot more.

Senator ECTON. Mr. Grubb, in order to clear it up, what concerned some of us was this fact: We felt that we had available now, and will have within the next year or two, all the necessary electricity at Fort Peck that this plant will use.

Mr. GRUBB. I think the same statement can be made for Pocatello.

Senator ECTON. And we could not see any justification for building an additional 230-kilowatt line for several hundred miles to supply a plant in Idaho at an additional cost of, oh, $40,000 or $50,000 per mile, when we already had the necessary number of kilowatts on the site, practically. That is what we have not been able to reconcile in this whole deal, if electricity was one of the major factors.

These engineers have told us that electricity was not one of the important things; other engineers have told us that. Mr. Lilienthal told us that; that electricity was not the essential thing in the determination, and also Mr. Shugg, inasmuch as they would not need more than from 4,000 to 10,000 kilowatts. But now you come in here, as an engineering firm, and tell us that when it all gets set up they will need at least 70,000 kilowatts.

Mr. GRUBB. The demand for the first couple of years, perhaps, is in that order. However, the basis on which we have been working was that the ultimate demand would build up to the figure mentioned. Both sites can now handle the demand.

Senator ECTON. Yes; I think that is true.

Mr. GRUBB. And for several years to come.

Senator ECTON. For the next 2 years.

Mr. GRUBB. Furthermore, the experience of companies in both areas, perhaps, is that, generally speaking, if they are able to anticipate the demand, they can build to meet it in adequate time. Such time was available here, as far as that goes.

Senator ECTON. But I think Congressman Mansfield can recognize our position, too, in the face of this, when there has been so much pressure put on to bring Hungry Horse power down to Anaconda and Butte. Why, it would only be a little farther to bring it on down to Pocatello, and we have seen charts where the Power Commission, in their expansion program, intended to do that very thing.

So you can readily understand our questioning and our concern and our apprehension regarding this.

Representative MANSFIELD. That is true, I will say to the Senator, if the Senator will pardon me, but that question has been raised so many times, Senator Ecton, that I wrote both Dr. Raver and Mr. Lilienthal and got their answers in writing as to just where their power was coming from. I also am of the firm opinion, and have so stated in the record and on the floor of the house, that, as far as I am concerned, these lines are being built for the building up of Montana and not for the building up of Idaho, Utah, Oregon, Washington, or any other State.

You know, we have been in a pretty backward position for a good many years, and I hold pretty fast to the conclusion that it is about

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time that we people from Montana got busy and started looking after our own interests, and developing our own interests, for our own benefit.

The CHAIRMAN. Well, you are busy, all right.

Senator ECTON. That is what we are here for.

Representative DURHAM. Is there a shortage of power in that area at the present time?

Representative MANSFIELD. Not in our area. There is a slight surplus. But that surplus is predicated on a number of factors, such as the difference in Pacific coast and mountain time, by means of which the Montana Power ships out power to Washington, and also because of the fact that part of the surplus comes from the use by the Montana Power Co. of the leased hydroelectric capacity from Fort Peck. The Montana Power also has a tie-up with the Utah Power & Light between Butte and Salt Lake, and part of that power from the Montana Power Co.'s tie-up line there goes to Arco, Idaho, for use at the Navy Proving Grounds there.

I do not know how much, or what the rate is, but that is the situation at the present time, and it is anticipated that this time next year there will be no surplus in the State of Montana, and we will begin to experience a shortage as well.

On the basis of the Hungry Horse Dam, we are tying in with the Bonneville at Grand Coulee, because, if Hungry Horse was to operate as an isolated unit, all we would get in Montana would be 77,000 kilowatts of firm power a year. But on the basis of this tie-up, we are assured of a minimum of 187,000 kilowatts of firm power a year in Montana. And the purpose of this line to Anaconda is not to extend down into Idaho or anywhere else, but to develop the phosphate and manganese deposits of Montana.

And Carl, you, as a farmer, know what phosphate means to the future of this country, and all of you know how important manganese is to the development of the steel industry.

STATEMENT OF GERALD J. SKIBBINS, PERSONAL REPRESENTATIVE OF HON. JOHN BONNER, GOVERNOR OF MONTANA, AND INDUSTRIAL CONSULTANT, MONTANA CHAMBER OF COMMERCE, HELENA, MONT.

Mr. SKIBBINS. To complete our testimony, I would like to introduce for the record several studies which are pertinent to these hearings.

It is our hope and our respectful request that the questions raised in these studies be answered in detail by the Commission. I am presenting this material as the personal representative of Gov. John Bonner of the State of Montana. Governor Bonner is vitally interested in obtaining adequate answers to each of these points and feels that they might be the subject matter for additional surveys on the subject of locating this reactor laboratory, along with the testimony presented by Montana at the previous hearing.

If the Commission has enough time to spend the entire year of 1949 in drilling for water while a 175-mile-long lake sits unused at Fort Peck, Mont., then there is time to make careful and responsible studies of all the plant location factors which should be considered in locating this billion dollar installation. That money is the prop-

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erty of the citizens of the United States, and I feel it would be the highest expression of responsible administration for the Atomic Energy Commission to insist that every type of social, economic, engineering, and field study be completed before they come to a final decision on the location of their new installation.

The well-drilling going on at Arco is in the nature of a field exploration of underground water resources. Negotiations with the Navy Department are exploring the availability of the naval proving ground at Arco. In order to complete the information which should be available before a final decision is reached on the location of this plant, the people of Montana, through their Governor, respectfully suggest that the private enginering firm and the Commission initiate studies to answer all the questions raised at both hearings as well as all the problems and questions raised in the papers I am submitting today.

As a sovereign entity within the United States of America, the State of Montana respectfully requests that the Senate-House Committee on Atomic Energy and the Atomic Energy Commission seriously consider the advisability of this suggested procedure in order to satisfy the serious concern of the people of Montana.

If careful studies on all the subjects involved in this plant location are made, we are willing to abide by a decision made in line with those results. It is our lack of confidence in the premises which have prompted the preliminary decision on Arco, Idaho, which has prompted our recent and present actions in the matter, however, should an adequate body of knowledge be assembled on both sites, and should it clearly demonstrate that every problem involved can be more easily and economically solved at Arco than at Fort Peck, then we will consider the matter closed and will heartily congratulate the good people of Idaho.

On or about April 16 in Salt Lake City, Utah, Mr. Lilienthal released to the press a statement to the effect that the location of this plant at Fort Peck, Mont., would endanger the water in the Missouri River. We had thought that the subject of contamination of river systems was so disturbing to the public at large that it might be avoided in public statements, however, seeing that the subject has been raised, we have urgently requested a study of the matter and I submit a paper prepared by Mr. Norman J. Holter, physicist, director of the Holter Research Foundation at Helena, Mont., and formerly senior physicist in charge of wave measurements with the Bikini expedition. Mr. Holter makes no claim to ultimate wisdom on the subject but he does say, in effect, that it can be argued that the Fort Peck site offers greater protection in the event of an industrial catastrophe than does the Arco site.

Briefly, here is the argument. In the event of the falling apart of a reactor, fission products and primary fuels will be scattered some distance. At Arco, this material will percolate into the lava beds and reach the Snake River 75 years later, according to the Smith, Hinchman & Grylls report. By this time most of the short-lived fission products will be dissipated, it is true, but the tons of primary fuels, uranium or plutonium—which are extremely dangerous in even small concentrations when taken internally—will not lose their radioactivity for thousands or millions of years. Seventy-five years will

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have no effect on their potency. How has the Commission decided to control these contaminating products underground where they will be flowing down old channels of the Snake River? What if my previous testimony regarding a show of coliform contamination in the Thousand Springs area proves correct and fission products only take a very short time to reach the Snake River?

At Fort Peck, the Smith, Hinchman & Grylls report has stated that soil is impervious. That is a distinct advantage to Montana's site. In the event of the falling apart of a reactor there, the fission products and the primary fuels would remain on top of this impervious surface. As the site is on top of a table of land with no water drainage into the area, a simple 2-foot retaining wall would prevent any possible leakage of whatever meager rainfall might occur and the flooding of the area with oil after the catastrophe would insure its protection from any winds. After a few months this area would be a valuable uranium mine which could be worth millions of dollars. The uranium or plutonium could be collected and reused to good advantage and no danger of any kind would accrue to man or beast.

I am sure that the people of Idaho ought to be seriously interested in an explanation of the contamination problem. In Montana we respectfully request that this argument be answered in detail because contamination has been used in the newspapers as a reason for the Commission's rejection of the Fort Peck site.

I submit Mr. Holter's paper on the subject which was prepared at our request in good faith.

I also submit excerpts from United States Geological Survey No. 199, entitled "Geology and Water Resources of the Snake River Plains of Idaho" by Israel C. Russell. These excerpts discuss the climate of the Arco-Pocatello area. In one paragraph, Mr. Russell discusses the high winds in the area and the phenomena of miniature whirlwinds which spiral across the area during the summer, forming tall columns of dust. This is a serious point to consider in relation to a possible catastrophe, should such a whirlwind move across the plant site after a catastrophe has occurred.

If, as Mr. Lilienthal and Mr. Pike have stated publicly, the subject of contamination is of great importance, then the measures taken to prevent it are matters of serious public interest wherever this plant is located.

Next, I wish to submit for the record a series of discussions and questions of a technical nature on the subjects of geology, topography, drainage, water supply, disposal of waste water, et cetera, dealing with both the Fort Peck and Arco sites. These questions and discussions relate directly to points in question or in need of amplification within the Smith, Hinchman & Grylls report. They might properly be regarded, along with other testimony submitted in these hearings as the subject matter for further surveys regarding the location of the nuclear laboratory.

On behalf of Gov. John Bonner and the people of Montana, let me say that we are anxious to prove to this committee and to the Atomic Energy Commission our friendliness and our eargerness to help them in this matter. Most of us in Montana are blessed with large supplies of natural gas which is the finest fuel in the world for heating and home and industrial use. You all know that the State of Montana

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has every natural resources known to man in superabundance. We proved this statement when we learned that the Commission would like to have natural gas for their use in this new laboratory. We opened up an entirely new gas field in Musselshell County, Mont., a field that is ideally located for piping gas into the Fort Peck-Glasgow area.

According to the Smith, Hinchman & Grylls report, the laboratory will need 6,320,000 cubic feet of gas daily. For good measure, we have brought in a well which produces 51,500,000 cubic feet of gas daily at a depth of only 1,420 feet. An immediate expansion is going forward in proving the total potential of this field but it can be said now that the nuclear-reactor laboratory can have the cheapest, cleanest, and most efficient fuel in America, Montana natural gas, at Fort Peck, Mont. That one fact should reverse all calculations of engineering and operating costs and place the Fort Peck site in a superior position.

Because this is a time when several very important measures are before the Congress, the people of Montana wish to sincerely thank the Senate-House Committee on Atomic Energy and its vigorous chairman, Senator Brien McMahon, for having displayed a high sense of public responsibility in hearing out our case. We are all grateful for this democratic treatment and hopeful that this entire subject of locating the nuclear-reactor laboratory will now proceed toward its logical conclusion.

(The memorandum from Mr. Holter, dated April 27, 1949, is as follows:)

Memo to G. J. Skibbins.
Subject: Possible catastrophic accident at nuclear-reactor plants.

Herewith a few quick thoughts on possible advantage of Glasgow area over the Arco area in case of explosion. It has previously been emphasized that the soil at Arco is very porous whereas that at Glasgow is very impervious. On this basis it might be argued that the Arco location provides greater hazards to those living at a distance than does the Glasgow area for the following reasons.

Whatever type of nuclear reactor is in operation it will be using some basic fuel such as uranium or plutonium. Both of these materials have long half-lives; that is, they stay radioactive for a long time—many millions of years in the case of uranium. As these materials are "burned" in a reactor they are converted to fission products which in general are more radioactive than the basic fuel elements but which have relatively shorter half-lives; that is, their radioactivity dies out much faster than does that of say uranium. Assume a large-scale industrial-type explosion (i. e., not an explosion in the atomic-bomb sense) occurring in a nuclear reactor. Among the materials scattered about by such an explosion will be the moderator (e. g., graphite) which is present in large quantities but which is harmless, the fission products existing in the reactor at the time of the explosion (highly radioactive at first but "cooling off" within a reasonable interval) and the basic fuel (present in large amounts) with radioactivity which, though less than that of fission products, does not change appreciably in millions of years.

If, as has been stated by the report of Smith, Hinchman & Grylls such materials were to seep through the Idaho soil and take as much as a hundred years to reach a surface river, it is true that the radioactivity of the fission products would by such time have decreased to a safe level but there is some question in my mind whether the tons of primary fuel will have been sufficiently diluted to prevent a hazard to health in such river. Even in a hundred years they will be essentially as radioactive as when they first started seeping into the lava. If uranium or plutonium were to reach any river or water supply which might be used for drinking, the hazard to health would be very great unless it can be conclusively shown that the concentration would be well below the tolerance level.

On the other hand, consider the Glasgow area and assume a protection screen such as a concrete wall 1 or 2 feet high surrounding the plant at a distance

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great enough to contain material ejected by an explosion. Regardless of the area of such enclosure a 2-foot wall would require 2 feet of rainfall (so remote as to be considered impossible) at the time of catastrophe in order to wash dangerous materials to surrounding streams. Here likewise consider an explosion with the materials as described above scattered within the enclosure. The imperviousness of the soil if sufficiently great would prevent the materials from seeping down where they would eventually enter the headwaters of the Mississippi. If one then waited until the fission products had lost most of their radioactivity they could reenter the area and operate it as a "uranium mine" thus recovering the primary fuel rather than letting it be transported to where it might cause damage, e. g., through porous soil such as that at Arco. During the time required for fission delay, the area could possible flooded with a heavy viscous material which would serve to keep the material from being blown about until it could again be approached.

I do not offer the above as a workable method but to remind you that the hazard from an Arco plant might be as great or greater than at Glasgow when long-lived primary nuclear fuel is considered. The principal objection which I see to the concrete enclosure idea is that radioactive material would be carried into the headwaters by winds at the time of the explosion. This is probably a real difficulty but here again though not solving the Glasgow problem it makes Arco equally untenable if, as I understand it, there are sometimes dust storms reaching thousands of feet high in southern Idaho.

NORMAN J. HOLTER,
Former senior physicist in charge of wave measurements with the Bikini expedition, now director, Holter Research Foundation.

(The excerpt from the Bulletin of the United States Geological Survey, No. 199, Geology and Water Resources of the Snake River Plains of Idaho, by Israel C. Russell, is as follows:)

Climate.—The climate of the Snake River Plains has for its leading characteristics aridity, prevailing high temperatures in summer, and severe cold in winter. One of the most marked features in the atmospheric conditions at nearly all seasons is the great range in temperature between day and night.

The mean annual precipitation is about 13 inches, but many local variations occur. Nearly all the water that reaches the thirsty lands comes in winter and spring. During the growing season the soil is invariably parched and successful agriculture without irrigation is seemingly impossible.

The summers are decidedly hot. Not infrequently for many consecutive days and even for weeks at a time the temperature during the hours of sunshine is over 100° Fahrenheit and frequently reaches 105° Fahrenheit, and reports by local observers of 110° to 115° in the shade are not rare. Owing to the dryness of the atmosphere, however, the heat is seldom oppressive, and sunstroke is said to be unknown. Under the prevailing clear skies in summer radiation is rapid and the nights are nearly always cool. Exceptionally warm nights occur when the sky is clouded, and radiation from the heated soil and rocks is checked.

In winter the atmosphere is even clearer than in summer, as the rain and snow remove the dust which is ever present when the soil is dry. The air is cold and the temperature has a greater daily range in winter than in summer, frequently falling far below zero Fahrenheit. During the winter of 1898–99 the minimum temperature at Blackfoot was minus 30° F., and at Minidoka, minus 28° F., while the year following at Lost River, situated on the western border of the plains, in the entrance to a tributary valley, a temperature of minus 41 degrees was recorded. During the year 1898 the last killing frost in spring at Blackfoot was on June 5, and the first frost during the succeeding fall was on September 29; at Minidoka the corresponding conditions occurred on May 14 and September 4. The snowfall, while aggregating during certain winters from 30 to 45 inches or more, varies greatly from year to year and from place to place, but seldom remains long on the ground. The sudden snowstorms are usually succeeded quickly by thaws during the hours of sunshine and sleighing is seldom practicable. Warm winds, termed "Chinook winds," frequently occur in winter, during the prevalence of which snow, if present, disappears as if by magic, leaving the plains and the lower slopes of the bordering mountains bare. Large numbers of horses, cattle, and sheep are pastured on the plains throughout the winter and require to be fed only during the more severe storms. In winter the skies, although frequently clouded, are usually clear, especially at night, and the stars are of phenomenal brilliancy.

The prevailing winds, often heavily dust-laden, are from the west, and at many times, especially in the fall, blow with such strength and constancy as to become

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trying to a person's nerves. In summer and fall strong afternoon winds frequently occur, which die away at sunset; these are almost invariably from the west. These strong breezes are nearly as regular in their periods as the sea breezes on lands bordering warm seas, but instead of bringing a refreshing coolness they are frequently hot, and to one facing them seem the breath of a furnace. On the broad plains miniature whirlwinds are of frequent occurrence, particularly on hot afternoons, and the dust carried upward by them forms tall columns with hollow centers in which, when they are near the observer, a spiral motion can be discovered. These dust columns are sometimes 2,000 or 3,000 feet high, and are a characteristic feature of the parched desert-like plain when heated by the intense summer sun.

Owing to the great extent of the plains, their variations in altitude, the influence of the adjacent mountains, and other factors, there are many local variations in the climatic conditions. The most marked differences are in temperature and in the length of time the land is snow covered.

These variations are most marked in the broad, nearly flat areas forming the general surface and in the limited tracts of level land in the canyons and canyon-like valleys. In the canyon of Snake River and its tributaries below Shoshone Falls the atmospheric conditions are markedly different from those on the surfaces of the adjacent plains. In the canyons the temperature in summer, owing to the shelter from the winds afforded by the bordering precipices and the reflected and radiated heat from the black rocks, is usually much higher than on the open plains. Cool breezes frequently blow along the river, however, tempering the intense heat. Again, in winter, owing largely to the ameliorating influence of the river, as well as the protection afforded by the bordering cliffs from the freezing blasts that sweep over the plains, the mean daily and monthly temperatures in the canyon are considerably higher than on the neighboring undissected plain. Snow seldom lies on the ground in the canyon bottoms for more than a few days at a time.

The canyons furnish many favorable places for orchards, vineyards, and gardens, not only on account of the intense heat and strong light during the growing season, when they are essentially hothouses, but because water from springs with a temperature of about 60° F. can frequently be had for irrigation.

In brief, the Snake River plains present a typical illustration of an insular or continental climate, such as is characteristic of regions of mild relief, remote from the tempering influences of the ocean, and deprived of their requisite share of moisture by the presence of lofty mountains in the path of the prevailing winds.

One feature of the weather in early fall is the gathering of thunderstorms about the mountains and their advance with fierce lightening and deep-toned thunder over the plains, where they melt away and disappear ineffectually in the drier air. At times these struggles of opposing forces are repeated daily, and a more advanced position is gained each afternoon by the invading storm, until a few pattering raindrops fall, or perchance a brief drenching downpour occurs on the thirsty sagebrush lands. More often, however, the vast banks of brilliantly illuminated cumulus clouds are festooned below with descending rain sheets which fail to reach the earth. Accompanying these inefficient thunder squalls there sometimes comes a heavily dust-laden wind which advances across the land like a wall of blackness, obscuring the landscape, and as it passes the observer producing a twilight even when the sun is high in the heavens. At such times the eyes are blinded and the throat is choked by the all-penetrating dust particles. These dust storms, unaccompanied by rain, explain the origin of the fine yellow soil which covers much of the plains, mantles the sides of isolated volcanic hills, and extends far up the neighboring mountain slopes.

The temperature of the water pouring out of the walls of Snake River Canyon shows that it is not derived from deep fissure springs and, in fact, has not made a deep descent into the earth. The water no doubt comes from the mountains lying north of the Snake River plains and is supplied mainly by the subterranean flow of "lost rivers."

(The geology report on Fort Peck site referred to is as follows:)

1. GEOLOGY

The geology of the Fort Peck area as reported by Mr. H. T. Stearns and Mr. A. M. Piper is believed to be an accurate and adequate description of the general geology of the area, namely, from Milk River to Fort Peck Reservoir and from Larb Creek to Fort Peck Dam site. The report is, however, I feel, inadequate

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in specific detail in that it fails to emphasize the geology of the construction site as shown by the engineering firm, namely, ranges 36 and 37 east, township 26 north. In the report generalities have been drawn that may or may not be applicable to the specific area. The following statements as included in the report are in point.

The presence of glacial drift in the area is in general as mapped by Mr. Piper on map 3–A of his report, namely, north of the proposed site and extending across the northern side of the area. Mr. Stearns in his report on page 3, paragraph 4, states:

"A thin veneer of glacial till lies north of the site and locally obscures the Bearpaw shale. It is clay containing pebbles and cobbles of foreign rock transported by glaciers. The thickness of the till is rarely more than 10 feet."

Under III Geology, page 54, of the Smith, Hinchman & Grylls report is found:

"The Fort Peck area is everywhere covered with a gumbo topsoil (weathered Bearpaw shale) 4 to 20 feet deep."

My findings on investigation of the two townships in question were that only a very thin veneer of glacial drift of from a few inches to 2 feet in thickness composed of yellow clay, gravel-sized pebbles, and a few scattered boulders 6 inches to 1½ feet in diameter was present over this area in scattered localities where the Bearpaw shale did not crop out. Glacial drift as much as 15 feet in thickness is present east of Willow Creek in the vicinity of Fort Peck Dam. Presumably based on the above-cited conflicting data, the construction firm of Alvord, Burdick & Howsan in their report under IV E. Construction and operational costs, page 111, state:

"(*a*) The soil at the Fort Peck site is a glacial drift containing bentonitic clay (gumbo). This soil is not suitable for supporting heavy loads as explained elsewhere in this report, and for that reason excavations for foundations and footings will need to be made to the Bearpaw shale, an average depth of approximately 15 feet."

Continuing in the next paragraph they state:

"A preliminary estimate of the cost of excavation and sealing indicates that it would be approximately $2 in addition to the normal $1 per square foot of ground floor area."

QUESTIONS

1. How much glacial drift is present at the site where major construction is planned?

2. Assuming the glacial drift is not of an average depth of approximately 15 feet as has been done by Alvord, Burdick & Howsan, what reduction in the cost of excavation, inasmuch as a total of $3 per square foot of ground floor area is involved, can be made in favor of the Fort Peck site?

Similar discrepancies appear in the report regarding the composition and structure of the Bearpaw shale. The thickness of the Bearpaw shale in this locality is estimated at from 800 to 1,000 feet. The greatest amount of erosion of the upper beds of this shale has no doubt taken place in the valley of the Missouri River. The shale as it was encountered during the construction of Fort Peck Dam in the axis of the Missouri River is described by Mr. Piper. The thin seams of bentonite from a few inches to 1.4 feet encountered at the dam have been discussed in some detail. The elevation of the shale at this site is in the neighborhood of 400 feet lower than it is at the site chosen for construction approximately 25 miles to the west. The fault zones encountered at the dam site have also been mapped and included in the report. From this data the conclusion is drawn that similar conditions would be encountered at the proposed AEC plant site. This is an assumption sufficiently important because of its influence on the construction of foundations that, in my opinion, should not be made without benefit of some exploratory work at the proposed site.

Under III D. Foundation conditions, pages 58 and 59, of the report, following a discussion of the shale at Fort Peck Dam is found the statement, "may be expected to occur" when reference is made to the rest of the area. In my discussions with the Army engineers at Fort Peck I was advised that no serious foundation failures have occurred at the dam and that the steel and concrete power plant requires foundation pressures of 4.4 tons per square foot. The report makes no distinction in the problems that were encountered at Fort Peck that must be considered related only to the construction of a major earth fill dam as distinct from problems that would be encountered in the construction of a plant such as we understand is now under proposal.

On page 10, item 23, of Mr. Stearns' report, a comparison of the surface rocks that would be the foundation material for construction at the two sites is

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made. An analysis of the basalt at Pocatello is given in some detail. In comparison in his description of the Bearpaw shales at Fort Peck is found the statement, "No analyses available," following which is cited as conclusions that abundant bentonite is present, also abundant gypsum, in the seams. It is not possible to determine what is meant by abundant and just how thick and of what frequency are the seams.

QUESTIONS

1. Do you know that the seams of bentonite and gypsum and the faulting conditions found in the Missouri River Valley at Fort Peck are present at the site chosen for construction of the AEC plant?
2. What is meant by an abundant amount of bentonite and gypsum?

II. TOPOGRAPHY AND DRAINAGE

The major part of the two townships chosen as a construction site is best described as tableland, the top of which shows the results of glacial scouring. Well-rounded knolls of bedrock shale with elevations of 30 to 40 feet above the average land surface are the principal relief features. The tableland characteristic is the result of the action of the glacial ice sheet and the large volumes of water released as the ice melted. The broad, flat, scoured-out valleys of Larb, Beaver, Willow, and Lone Tree Creeks are approximately 50 to 150 feet lower in elevation. The location and direction of flow of these creeks, namely Larb Creek on the west flowing north, Lone Tree Creek on the south flowing southeast, Willow Creek on the east flowing northeast, and Beaver Creek on the north flowing southeast, have left the area under discussion as a broad erosional remnant. The tributaries to these creeks have failed to produce any well-defined drainage channels into the tableland due to the low average annual rainfall and the resistance of the Bearpaw shale. Drainage of the proposed site is in all directions with little to no opportunity for the run-off waters to collect in any appreciable quantity until the lower part of Willow Creek is reached. The weathering action of the Bearpaw shales is distinct from that of the soft sandstones and carbonaceous shales of the Lance formation found between Willow Creek and the Fort Peck Reservoir.

In paragraph 4, page 55 of the report, the statement is made that "some terracing has been done on the site to check rapid run-off and to conserve the soil." This statement is incorrect. In the broad alluvial filled valleys under a cooperative agreement between the Soil Conservation Service and the local grazing associations small dikes varying in height from a few inches to about 2 feet were built along the contours to impound the waters released from snow melt in ponds of from 5 to 40 acres. Grass seed was planted in the impounded areas and the small amount of water supported growth of this grass for winter pasture. Such an operation would have been impractical in an area subject to flooding, and the program was not designed to prevent soil erosion.

No stream gaging records are included in the report to support the statement that flash-flooding conditions can be anticipated. A correlation is drawn between streams in the Milk River Valley at some distance from this site. It is not shown that the streams used for comparison purposes drain an area composed primarily of Bearpaw shale or what the elevation of these streams is or the nature of the valleys of these streams.

QUESTION

Do you know that floods occur in the creeks that drain the proposed site in the locality of the proposed site?

III. WATER SUPPLY

Reference is to III F and paragraph 4 of page 76 of the Smith, Hinchman & Grylls report. The report states:

"The necessary 6,000,000 gallons per day for domestic water supply would be developed by the addition of three wells to the facilities of existing communities. The estimated cost is $65,000. The addition of an iron removal process to improve water quality would increase the total cost to about $582,000. An alternate system would use filtered Milk River water at an estimated construction cost of $625,000. The cost of a distribution system for either proposal is estimated at $380,000."

It is not apparent why expenditures of these large sums of money are necessary and have been included in the report.

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During the construction of Fort Peck Dam the maximum increase at any one time in Valley County of employees, their families, etc., was 50,000 people. The increased demands for water were taken care of by the local communities and by the drilling of a few shallow wells at the sites of the mushroom towns. No charge was made to the Army engineers for any of the increased installations. Neither prior to construction of the dam nor during the con truction, nor since construction has been completed has it been found necessary to install iron removing equipment in any of the municipal or local water supplies. The only expense to the Army engineers was the installation of a small filtration plant designed to meet the needs of the Federal employees at the permanent installations at Fort Peck site. It is my belief that the domestic needs for construction of the atomic energy plant at the proposed site can be met in a similar manner. The saving incurred would be the sum total of $65,000 for wells, $582,000 for iron removal equipment, and $380,000 for distribution system, totaling $1,027,000.

QUESTION

Will the requirements for construction of this project as compared to those for construction of Fort Peck Dam be such that the water needs for the construction employees cannot be met in the same way as was done during the construction of the dam?

The water requirements of the plant in the amount of 23,000,000 gallons per year are, according to the report, available from the Fort Peck Reservoir. It is my opinion that the importance of this adequate supply has been underestimated in the report. The availability of the water needs, and more if future requirements demand, in a controlled reservoir appears to have definite advantages when compared with the estimated but inadequately proven supply described at Arco, Idaho, and discussed later in this report.

IV. DISPOSAL OF WASTE WATERS

It is not within my experience to know of the requirements relative to the disposal of contaminated water of the type referred to in this report. Factors of a geological and hydrological nature present at both the Fort Peck and Arco sites are, however, believed to be pertinent.

The Bearpaw shale, which is highly impermeable and is known to be present at the Fort Peck site to depths of 800 or more feet, is remarkably uniform in texture. This rock would apear to be an ideal material for the construction of discharge reservoirs with little to no danger in the Fort Peck Reservoir suggests that an available and convenient method for diluting the waste water is present at this site.

The report makes special emphasis of the possibility of a catastrophe. It is not known just what type of a catastrophe is being considered, although Mr. Piper on page 33 of his report emphasized that the location at Fort Peck is understandable inasmuch as it is adjacent to a major river system. It can only be assumed that the reference is to the possibility of contaminated waters getting into the main body of the Missouri and later the Mississippi River. I believe it is important to note that, should contaminated water reach the Fort Peck Reservoir, after dilution at this point it would move down the Missouri Valley through a relatively undeveloped area only to be further diluted and impounded in the much larger body of water that will be held back on completion of the Garrison Dam, and that following release at Garrison Dam its path would be through an undeveloped region until it reached the large reservoir that will be impounded behind Ford Randall Dam, which is also now under construction. Over this entire distance of flow it will have passed only one town of any size—namely, Bismarck, N. Dak., whose population is approximately 18,000. It is difficult under these circumstances to see why reference was made to the possible contamination of the lower Missouri River Valley and Mississippi River Valley.

QUESTIONS

1. Do you feel that the possibility of a catastrophe which would endanger large areas in the Missouri and Mississippi River Valleys warrants abandonment of the Fort Peck site?

2. Is the catastrophe under consideration similarly dangerous to the Arco site?

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(The geology report on the Pocatello site is as follows:)

I. GEOLOGY

The geology of this site was described in the Smith, Hinchman & Grylls report and the reference included in this report—namely, United States Geological Survey Water Supply Paper 774—has been reviewed.

The lava beds, according to the report, are reportedly of a thickness "at least 1,000 feet." These beds are described in the report as follows: "The surface of the lava, which is very permeable, clinkery, spiny basalt with deflated vesicles * * *" and, later on, as "vesicles formed by the expansion of gases as the lava cooled as well as tunnels and caves, open spaces, at contacts, shinkage cracks, tree molds, and porous clinery rock. * * *"

Continuing the description, "Little information is available regarding the composition of the overburden. Logs of the well drilled in the Naval Proving Ground are presented as a part of the report of Mr. Harold T. Stearns. * * *" Quoting further from the report, on page 66 the engineers recommend as follows: "However, to safeguard against the possibility of subsequent failure because of large cavities characteristic of this formation, a number of test borings should be made within the area to be occupied by the structure. Load tests are recommended where foundations are to be erected on the gravel and clay beds."

Inasmuch as the sand, gravel, and clay beds are outwashes built up on the surface of previously deposited lava beds, it is apparent that the cavernous nature of the lava beds can also be wash deposits. Based on the geology as described in the report and in part quoted herein, the conclusion of the engineer as stated on page 67 is: "The basalt lava at Pocatello offers excellent material on which to build heavy structures." The surface of the lava flows is described as windblown material, variable in thickness, with considerable increased thicknesses found in depressions. No cost estimates are available to cover the cost of doing the recommended boring for foundation formations nor in any estimate made as to the cost of removing the windblown and outwash material that reportedly cover the lava flows.

QUESTIONS

1. Do you know that the site chosen is free of caverns and tunnels and is suitable for heavy construction requiring foundation supports of 8,000 pounds or more?

2. Do you anticipate at this location that some cost will be involved in removing the windblown and outwash material to permit construction on solid basalt?

3. Assuming that borings as recommended encounter tunnels and caves, what adjustments would be necessary at the Pocatello site?

The report describes lava flows in the vicinity of Craters of the Moon National Monument as having occurred in very recent geological times. This igneous activity is described as having taken place approximately 1,000 years ago. No evidence is given to indicate that a repetition of this relatively recent, geologically speaking, igneous activity cannot be expected to reoccur.

QUESTIONS

1. Do you believe that this is an area of relatively recent igneous activity?

2. Is there any assurance that this igneous activity is not at present only in a state of resting and will not again become active?

II. WATER SUPPLY

The report describes two potential water supplies to meet the needs of the proposed plant.

After suggesting that water can be taken directly from the Snake River at a cost not competitive to the ground-water supply (and also far more expensive than the supply at Fort Peck), it practically eliminates this source by stating that the water in this area is at present committed to purposes of irrigation. The water supply to be considered, therefore, is to be taken from the underground waters found in the lava beds. A description of this potential water supply at the proposed site is given on page 3 of Mr. Stearns' report, "An insufficient number of wells exist in the area to prepare a water-table map. At Cerro Grande, 6 miles due south, the water table has an altitude of 4,430 feet. Other wells at Midway and at Tabor, to the southeast, indicate that contours of the water table slope to the southward and at Midway southwestward at the rate of about

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5 feet per mile." Continuing in the next paragraph he states, "Such data as exist indicate that the underflow of Little Lost River, Birch Creek, and some of that of the Mud Lake Basin is moving southward under the site." The water-table contours as drawn on plate 19 of Water Supply Paper 774 of the United States Geological Survey and referred to in the report have not been drawn in the area of the proposed site.

The quantity of water moving underground in the area of the proposed well field is based on a rate of flow of one-half mile per year. This is the rate of flow computed for an area 72 miles northeast of the proposed site: Namely, from Egin bench to Mud Lake. As a basis for determining the specific yield of wells constructed in the proposed field, the results of pumping tests on Navy wells Nos. 1 and 2 are cited on page 9. Well No. 1 was pumped for 18 minutes at a rate of 590 gallons per minute. It has been my experience that a pump test of 18 minutes' duration is not a reliable test and that this is particularly true in aquifers that are cavernous. The large volumes of water adjacent the well are not necessarily removed to create a true cone of depression necessary to compute safe recharge. This is emphasized by the data given for the test on Navy well No. 2 located in the immediate vicinity of the No. 1 well. After 65 minutes of pumping at a rate of 150 gallons per minute, a specific yield of 15 gallons per minute was computed, considerably lower than that computed for well No. 1. Mr. Stearns has seen fit to point out that on an earlier pump test at a rate of 470 gallons per minute made by the driller the reported specific yield was 11½ gallons per minute or a decrease of 23.3 percent, and the time interval for the driller's test is also an unknown factor.

The logs of Navy wells Nos. 1 and 2 are cited to describe the nature of the rock formations that can be anticipated in the area of the proposed well field which is to supply this plant. The log of well No. 2 is as follows:

Two feet of soil, 8 to 15 feet of stream-laid gravel and sand, 2 to 10 feet of clay, 36 feet of basalt, 18 feet of clay, 67 feet lava, 4 feet of clay, sand, and gravel, 53 feet lava, 4 feet clay, 152 feet lava, 4 feet of clay, 41 feet of lava, 3 feet of clay, 97 feet of lava, 4 feet of sand, 140 feet of cinders and lava, 23 feet of clay, sand, and gravel, and 21 plus feet of lava. In 690 feet of lava no less than 7 interbedded impermeable clays are described. There is no evidence that similar clay beds are found in the Egin bench to Mud Lake area where the figure of one-half foot per mile for underground flow was computed.

Assuming that the direction of flow from the north and east into the well field is as described, there is apparently some question as to the underground geology at the south end of the proposed well field and as to how much recharge can be expected from the discharge of Big Lost River. Mr. Stearns points out on page 7 that much of the water from Big Lost River appears to move southward toward Snake River, a little west of the site, and that the Twin Buttes and Big Butte may be projections of a buried ridge of poorly permeable rock that separates the ground water under the site from that under the main part of the plain south of the line of these buttes or that the buried ridge may have been cut by a pre-basalt canyon, in which case the ground water south of the buttes could be made to move northward if the water table were lowered sufficiently by pumping under the site to cause the hydraulic gradient to slope northward.

QUESTION

Is the information available to permit making a definite statement as to the quantity of water moving into the proposed well field, the rate of this underground flow, and the specific yield that can be anticipated from wells intercepting this underground flow at the proposed Arco site?

III. DISPOSAL OF WASTE WATER

A very inconclusive and poorly described method for disposal of the contaminated and noncontaminated water at this site is suggested in the report.

The disposal of the waste waters as described in Mr. Stearns' report (p. 12) is as follows: "Uncontaminated waste fluids can be dumped into the lava beds, where they will slowly percolate to the basal water table and find their way to the Snake River Springs. The rate of movement of the ground water is of the order of one-half mile per year based upon the time it took the Egin bench water to reach Mud Lake." On page 8 of the Consultant's Preliminary Report (continued) under item K, Disposal of waste waters, is found, "Waters could be evaporated in the 'sinks' or sink into the basalts southwest of the site."

No mention is made as to the special handling that might be required of contaminated waste waters. If discharge is to be into the "sinks" located just

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north of the proposed well field, this water can be expected to return to the well field in accordance with the gradient of the water table as contoured on plate 19 of United States Geological Survey Water Supply Paper 774. The rate of this return is unknown. It can be expected that it would be influenced by the numerous impermeable clay beds as described in the logs of the Navy wells. It is also to be expected that the rate of return would be considerably influenced by the increased draw-down resulting from heavy pumping of the proposed well field.

If the contaminated waters are to be discharged south or southwest of the well field, contamination of the well field is likewise a possibility. Mr. Stearns points out the possibility of water reaching the well field from the main lava field due to draw-downs as cited earlier in this report. The rate of underground movement of the waste water is not given for the well-field area. It appears that something less than a scientific approach to the problem has been presented for an area composed of lava beds estimated to be from a few hundred feet to a thousand or more feet in thickness where tunnels and caverns are characteristic, some of which are as large as 50 feet in diameter, and where numerous impermeable beds of clay are known to be present both near the surface and at depths of 600 feet or more and where the computed transmissibility must be considered as relative.

In addition to the increased gradient toward the well field produced by lowering of the water table by pumping, consideration must also be given to the increase in gradient of the water table at whatever site is chosen for discharging the 23,000,000 gallons of waste water. No safe distance for discharging the contaminated waters is given in the report. Any increase in distance from the site down gradient as measured on the at present unknown gradient of the ground-water table means a decrease in the distance to the ultimate point of discharge, namely, the American Falls Reservoir and the Snake River.

QUESTIONS

1. Has a definite location for the discharge of contaminated and noncontaminated waste waters been described in this report?
2. Would discharging contaminated waters in the lower Big Lost River channel and the "sinks" be dangerous to the water supply in the present-described well field?
3. Is it known at what distance from the present well field contaminated waters can be discharged in the main lava bed south or southwest of the present well field?
4. Would discharging contaminated water down gradient as measured on the ground-water table decrease the time interval when such water would be discharged into the American Falls Reservoir or the Snake River?
5. Is the rate on which these contaminated waters would move from any site down gradient into the American Falls Reservoir and the Snake River known to you?
6. Is there danger of contaminating wells in the area north of the American Falls Reservoir before such contaminated waters reach the reservoir or the Snake River?

The report makes no mention of a possible catastrophe that may create serious damage due to the release of contaminated water in the area downstream in the Snake and Columbia River Valleys. Since I have no information as to exactly what is meant in this report by catastrophe, it is not possible to make specific deductions. It is, I believe, worthy of note to point out that the ground waters of the Snake River lava beds are discharged into the main channel of the Snake River and thus become part of that stream's flow.

The CHAIRMAN. Now, gentlemen, we will have to recess because I have to get to the floor.

Senator Hickenlooper had to go and the Members of the House will have to leave.

The Chair will announce future proceedings.

Senator ECTON. Before you leave I just want to again express my very deep appreciation to you and the members of this committee for listening to this testimony. I appreciate it very much.

(Whereupon, at 5:20 p. m., the committee recessed, subject to the call of the chair.)

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APPENDIX

UNCLASSIFIED PORTION OF THE ATOMIC ENERGY COMMISSION CONTRACT MANUAL

Bulletin **Procurement and Contracts**
GM–No. **Contract Manual**
Issuance Date:

CONTRACT MANUAL FOR ENGINEERING AND CONSTRUCTION SERVICES—
CONTRACT BOARDS

For: Managers of Operations.

1. *Purpose.*—The purpose of this Bulletin is to make effective the attached contract manual and to provide for the establishment of Contract Boards in the several Offices of Operations.

2. *Contract Manual.*—The contract manual provides the policies, practices, and procedures to be followed by the Commission and its field offices in contracting for construction and associated architectural-engineering services. To the extent and subject to the limitations of practicality provided in the Manual, these practices and procedures (unless in conflict with the provisions of existing contracts) are to be applicable to the Commission's cost-type contractors and the subcontractors. With respect to these services the manual also establishes certain operating relationships between the appropriate Division Directors and the Offices of Operations. As additional sections and parts are completed or revisions or changes appear necessary, they will be issued by the Director of the Division of Production after appropriate clearance with other Divisions and Offices. The portions of the manual issued herewith have been prepared on the basis that the reimbursable costs and liability provisions of contracts entered into by the Commission and its contractors for engineering and construction work will be substantially similar in those respects to the Army forms of contracts. Suggestions as to improvement of the content of the manual and requests for clarification of its provisions should be addressed to the Division of Production.

3. *Contract Board.*—For the performance of the functions of selection of contractors and contract negotiation (as described in this paragraph 3), each Manager of Operations shall establish a Contract Board in order to assure the use of combined judgment and the preparation of adequate records on these important matters. The Contract Board, for each selection or negotiation, should consist of three members (or more, if desirable) of the Office of Operation's staff designated by the Manager. He should also designate the Chairman and Secretary of the Board. The members of the Board, whether permanent or not, should be individuals of recognized ability, whose collective experience includes engineering, construction, and general contract administration. In each instance of Board action on selection or negotiation, the Board should be the means of bringing to bear the necessary judgments of those members of the Operation's staff having concern with the matter. These staff members may include those concerned with Community Affairs, Finance, Legal, Personnel, Production, Research, and Security as well as representatives of the prime cost-type operating contractor. To assure continuity and uniformity in procedure, it is desirable that at least one member of the Board be a key member of the Manager's staff and carry through its varied activities on a relatively permanent basis. For contracts having an estimated construction cost of less than $500,000, a panel of one or more members may act for the Board, subject to its review.

(*a*) With respect to prime contracts for engineering or construction services, the Board shall assist the Manager, as directed by him, in the following:

(1) the recommendation to the Manager of Construction Contractors and Engineer-Constructors to be selected to perform work on a cost-plus-a-fixed-fee

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basis, and Architect-Engineers to be selected to perform work on a lump sum or cost-plus-a-fixed-fee basis.

(2) the negotiation of fees to be paid on cost-plus-a-fixed-fee contracts, and the amounts to be paid Architect-Engineers.

(3) the negotiation of other substantive provisions of contracts for architect-engineer services and for construction services on a cost-plus-a-fixed-fee basis.

(4) the negotiation of adjustments in fees or in contract prices because of changes in the scope of the work to be performed under architect-engineer and cost-plus-a-fixed-fee construction contracts.

(5) the performance of such other functions as are provided in the contract manual or are assigned to the Board by the Manager of Operations. Assigned functions might include advice to the Manager on recommendations to reject all bids, award of contracts to other than the low bidder as to price, and other difficult contract problems.

(*b*) With respect to *subcontracts*, the Manager of Operations will determine the most appropriate manner for the Contract Board to operate in accordance with the provisions of the contract concerned.

4. *Confidential Nature of Part 4, Section IV of Manual.*—Part 4, Section IV and Exhibits II–A, II–B, and III of the contract manual contain information, particularly with respect to negotiation of fees, of a confidential character which makes it incumbent upon those having access to this Part and Exhibits to see that only those employees of the Commission requiring such information in performance of their duties shall receive it.

5. *Offices of Operations.*—Offices of Operations as used in this Bulletin and in the manual includes the Schenectady Operations Office.

6. *Effective Date.*—The provisions of this Bulletin shall become effective not later than thirty days from the date of its issuance. Each Manager of Operations, at his option, may make its provisions effective prior to that date.

7. *Prior Bulletins.*—Any Bulletins, Instructions or other memoranda which provide practices or procedures inconsistent with this Bulletin and the attached manual are superseded.

8. *Administration.*—Responsibility is vested in the Manager of Operations for effective utilization of the contract manual and for the establishment and functioning of the Contract Board. Staff assistance will be provided by the Director of the Division of Production.

CARROLL L. WILSON, *General Manager.*

CONTRACT MANUAL

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SECTION I. GENERAL PROVISIONS

PART 1. INTRODUCTION

1–10 *Applicability.* For the Commission and its field offices, this contract manual:

(*a*) describes the policies to be followed in contracting for construction and architect-engineer services;

(*b*) sets forth practices and procedures which should be followed in such contracting; and

(*c*) prescribes the method for determination of fees to be paid on lump-sum architect-engineer contracts and on cost-plus-a-fixed-fee construction and architect-engineer contracts.

To the extent and subject to limitations of practicality provided in the manual these policies, practices, and procedures (unless in conflict with the provisions of existing contracts) are to be applicable to the Commission's cast-type contractors and subcontractors. The effective date of the manual is provided in the transmittal Bulletin, a copy of which is included in Appendix I.

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1–11 *Supplements and Amendments.* As additional sections or parts of this manual are completed, or revisions or changes appear necessary, they will be issued by the Director of the Division of Production after appropriate clearance with other Divisions and Offices. The Managers of Operations may prescribe supplementary and implementing procedures which are consistent with the provisions of this manual. A copy of any written procedures will be forwarded to the Director of the Division of Production.

1–12 *Deviations From Manual.* No substantial or major deviation may be made without the prior approval of the appropriate Division Director (see paragraph 1–22).

1–13 *Definitions.*

1–13.1 *Prime Contracts.* The term "prime contracts" refers to contracts in which the United States of America, through the Commission, is a party.

1–13.2 *Prime Cost-Type Operating Contracts.* The term "prime cost-type operating contracts" refers to prime contracts for the establishment and operation of Commission facilities and under which the contractor is reimbursed his allowable costs as defined in the contract.

1–13.3 *Subcontracts.* The term "subcontracts" as used in this manual refers to contracts for engineering or construction work made by a prime contractor or by any contractor in a contractual chain wherein all the preceding contracts are on a cost basis.

1–13.4 *Construction.* The term "construction" refers to the erection or installation of any building, structure, plant, ground facility or other real property and material alterations or improvements thereto, regardless of purpose.

1–13.5 *Commission's Representative.* The term "Commission's representative" refers to the Manager of Operations or his duly authorized representative.

1–13.6 *Office of the General Counsel.* The term "Office of the General Counsel" refers to the counsel in the field or his designated representative.

1–13.7 *Director of Finance.* The term "Director of Finance" refers to the staff member having responsibility for accounting, auditing, and related matters in each Office of Operations.

1–13.8 *Other Definitions.* Other necessary definitions are contained in the appropriate portions of this manual.

PART 2. AUTHORITY TO MAKE ENGINEERING AND CONSTRUCTION CONTRACTS

1–21 *Commission's Authority.* The Commission's contract authority is set forth in the Atomic Energy Act of 1946, 60 Stat. 755 (42 U. S. C. secs. 1801, *et seq.*).

1–22 *Delegated Authority.* By GM Bulletin to each Office of Operations, and subject to the limitations contained in the Bulletin, the Managers of Operations have been given authority to negotiate and enter into contracts which are in accordance with approved programs and policies. Some of the limitations on this authority are—

(*a*) the approval of the appropriate Division Director[1] is required of purchases, contracts, extensions or modifications in excess of the amount set forth in the Bulletin;

(*b*) the Manager of Operations is required to bring to the attention of the appropriate Division Director all new or unusual types of contractual transactions;

(*c*) restriction of the authority to redelegate, and

(*d*) further stipulations imposed from time to time by the appropriate Division Director.

1–23 *Division Director's Approval.* Proposed contracts and subcontracts (and amendments) for engineering or construction services which are not within the authority of the Manager of Operations under the applicable Bulletins must be submitted with the information set forth in Exhibit I, attached, to the appropriate Division Director,

(*a*) for clearance before award and execution or approval of the contract by the Manager of Operations,

(*b*) after execution or approval by the Manager of Operations, for formal approval of the contract by the appropriate Division Director. The approval of the Division Director is also required in certain other instances as provided in other Sections and Parts of this manual.

[1] Division of Production for Raw Materials Operations Office, the New York Operations Office, the Oak Ridge Operations Office, and the Hanford Operations Office, including Schenectady Operations Office, Division of Military Application for Santa Fe Operations Office, and Director of Reactor Development for Chicago Operations Office.

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PART 3. BASIC POLICIES IN CONTRACTING FOR ENGINEERING AND CONSTRUCTION SERVICES

1–30 *Definitions.* The term "formal advertising" refers to that method of contracting for construction services provided in Section II. The term "invited bids" refers to solicitation of competitive bids from selected contractors qualified to perform the work and award of the contract as provided in Section III. The term "negotiation" refers to any method of contracting except by formal advertising or by invited bids.

1–31 *Statutory Provisions.*

1–31.1 *Section 3709 R. S.* In general, prime contracts are subject to and should be made in compliance with the provisions of Section 3709 of the Revised Statutes (41 U. S. C. sec. 5).

1–31.2 *Atomic Energy Act of 1946.* The Atomic Energy Act of 1946 provides that certain contracts may be entered into without regard to the provisions of Section 3709 of the Revised Statutes.

1–31.3 *Application.* The application of these statutory provisions to contracts for engineering and construction services is set forth in Part 1 of Section III.

1–32 *Methods of Contracting.* It is the policy of the Commission that—

(*a*) To the fullest extent feasible, construction contracts should be made on a lump sum or unit price basis using the formal advertising procedures provided in Section II.

(*b*) Where the procedure provided in Section II cannot be used, nevertheless there shall be obtained as full and free competition as is feasible in obtaining required engineering and construction services.

(*c*) A fair proportion of the total amount of contracts should be placed with small business concerns.

1–32.1 *Engineering Services.* Contracts for engineering services will be made on a lump sum basis in the manner provided in Section III, or if that is not feasible, on cost-plus-a-fixed-fee basis as provided in Section IV.

1–32.2 *Construction Services.* Construction contracts will be let by formal advertising as provided in Section II, or if that is not feasible, by invited bids as provided in Section III, or by negotiation. Construction contracts let by formal advertising or by invited bids will be let on only a lump sum or unit price basis. Construction contracts let on a negotiated basis may be lump sum, unit price, or cost-plus-a-fixed-fee type of contract.

1–32.3 *Improper Combination of Contracts.* A combination of a cost-plus-a-fixed-fee contract and a lump sum (or unit price) contract for engineering or construction services will not be awarded to the same contractor if performance of any portion of the work under each contract is to be concurrent and in the same general location. A lump sum or unit price contract or contracts shall not be let to the same firm for both engineering and construction services where the services are furnished for the same construction job.

1–32.4 *Prohibited Contracts.* Contracts may not be awarded to persons or firms who are disqualified by reason of failure to comply with the provisions of the Davis-Bacon Act (40 U. S. C. 276a to 276a–5), as provided in GM Bulletin No. 58. The cost-plus-a-percentage-of-cost type of contract will not be used.

SECTION II. FORMAL ADVERTISING FOR CONSTRUCTION SERVICES

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SECTION II. FORMAL ADVERTISING FOR CONSTRUCTION SERVICES

2–00 *Scope of Section.* This Section sets forth (a) the basic requirements for obtaining construction services by means of formal advertising, (b) the information to be contained in forms used for the solicitation of bids, (c) methods of soliciting bids, (d) policies with respect to the submission of bids, (e) requirements for opening of bids and evaluation of bids and for the awarding of contracts.

PART 1. USE OF FORMAL ADVERTISING

2–10 *Meaning of Formal Advertising.* As used in this manual, formal advertising means that method of procuring construction services by competitive bids and awards prescribed in this Section II.

2–11 *Use of Formal Advertising.* In accordance with the basic policies set forth in Part 3 of Section I, construction work shall be generally let by formal advertising. Bids shall be solicited in the manner provided in paragraph 2–21 from all those qualified contractors judged necessary by the Commission's representative, to assure full and free competition consistent with obtaining the required construction services. Subcontracts may be let without compliance with the formal advertising provisions of this Section II. However, in general, these procedures represent good business practice in the expenditure of Government funds. Consequently, insofar as practicable, procedures similar to those applicable to prime contracts should be used in letting subcontracts.

2–12 *General Requirements for Formal Advertising.* No contract shall be entered into as a result of formal advertising unless and until all of the following requirements have been satisfied.

(*a*) Compliance with the requirements of Part 2 of this Section II for soliciting bids.

(*b*) Compliance with the requirements of Part 3 of this Section II for submitting bids.

(*c*) Compliance with all applicable requirements of law, of this contract manual, and of procedures prescribed by each Manager of Operations.

(d) Award has been made to that responsible bidder whose bid, conforming to the invitation for bids, will be most advantageous to the Government price and other factors considered, as provided in Part 4 of this Section II.

PART 2. SOLICITATION OF BIDS

2–20 *Preparation of Forms.* The form or forms to be used in the solicitation of bids should contain substantially the following information:

(*a*) Invitation for Bids:

(i) An invitation number to be placed in upper right-hand corner.
(ii) Date of issuance.
(iii) Name and address of office to which bids will be sent.
(iv) Date, hour, and place of opening.
(v) Any requirements as to furnishing of bid bonds and performance and payment bonds.

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(*b*) **Bid Blanks**: Bid blanks are to be filled in by the bidder, and each bid is to be executed in accordance with instructions to bidders.

(*c*) **Drawings, specifications and other information**: The drawings and specifications, forms of contracts, time for commencement of work and its completion, and other data necessary for the bidder's information, or required by law, should be furnished interested bidders. Each document or attachment must be clearly identified by date, number, etc.

(*d*) Other information as is considered necessary by the Office of Operations.

2–21 *Methods of Soliciting Bids.* Bids should be solicited by the methods prescribed in paragraphs 2–21.1 and and 2–21.2 and by any other of the following methods as are deemed necessary by the Manager of Operations or his representative in order to assure full and free competition, provided that bids shall be solicited sufficiently in advance of the opening of bids to allow bidders an adequate opportunity to prepare and submit their bids.

2–21.1 *Mailing or Delivering to Prospective Bidders.* The form to be used in the solicitation of bids shall be filled out and mailed (or delivered) to each prospective bidder. Each Office of Operations should maintain current lists of construction contractors, classified by type of work they are qualified to perform, such as general construction, heating and plumbing, electrical work, etc. The list should afford as broad a coverage of contractors as is reasonably possible and every effort should be made to include small business concerns on these lists.

2–21.2 *Displaying in Public Place.* Copies of the form to be used in the solicitation of bids shall be filled out and displayed at some appropriate public place.

2–21.3 *Publishing in Trade Journals.* A brief announcement of construction work proposed to be let may be made available for free publication to trade journals or other publications which inform contractors of proposed construction work.

2–21.4 *Publishing in Newspapers.* The essential details of any construction work proposed to be let may be made available to newspapers for free publication. Paid advertisements in newspapers shall generally not be used; but when it is necessary in order to secure effective competition, a brief announcement of the proposed construction work may be inserted in newspapers as paid advertisements, subject to the following conditions:

(*a*) written authority for such publication has been obtained from the Manager of Operations;

(*b*) all requirements of law set forth in 44 U. S. Code 321–324 have been met; and

(*c*) the advertisement shall be prepared in accordance with General Regulations No. 109, issued December 20, 1946, by the General Accounting Office (26 Comp. Gen. 986).

2–22 *Addenda.* Changes, including additions, modifications and omissions, in the information supplied prospective bidders and interpretations and explanation of this information shall be issued in the form of addenda or bulletins to all prospective bidders.

2–23 *Office of Permanent Record.* Each Office of Operations is the office of permanent record for every invitation for bids issued and distributed by it and for every abstract or record of bids. The file of the invitation for bids should show the distribution which was made and the date thereof.

PART 3. SUBMISSION OF BIDS

2–31 *Method of Submission.* Bids shall be filled out, executed, and submitted by each bidder in accordance with the instructions accompanying the appropriate bid form. Neither telegraphic nor alternative bids shall be considered unless authorized by the invitation for bids or its accompanying papers.

2–32 *Time of Submission.* Bids shall be submitted in sufficient time to reach the designated office prior to the time fixed for opening. Bids received after the time fixed for opening are late bids; and the exact date and hour of mailing such bids, as shown by the cancellation stamp or by the stamp of an approved metering device, shall be recorded. Late bids shall be considered, provided they are received before the award has been made, and provided the failure to arrive on time was due solely to a delay in the mails for which the bidder was not responsible; otherwise, late bids shall not be considered but shall be held unopened until the time of award and then returned to the bidder unless other disposition is requested or agreed to by the bidder.

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2–33 *Modification or Withdrawal of Bids.* Bids may be modified or withdrawn, at any time prior to the time fixed for opening thereof, by written or telegraphic notice received prior to the time fixed for opening. After the opening of bids, no bid may be modified (except as provided in paragraphs 2–44 and 2–45) or withdrawn unless such modification or withdrawal is received before the award has been made and either (*a*) failure of the modification or withdrawal to arrive prior to the time fixed for opening was due solely to a delay in the mails for which the bidder was not responsible or (*b*) modification is in the interest of the Government and not prejudicial to the other bidders.

PART 4. OPENING OF BIDS AND AWARD OF CONTRACT

2–40 *Scope of Part.* This part deals with (*a*) the opening and recording of bids, (*b*) the rejection of bids, (*c*) informalities, irregularities, and mistakes in bids, and (*d*) the evaluation of bids and the awarding of contracts.

2–41 *Opening of Bids.* All bids received prior to the time of opening will be kept secure and unopened until the time of opening (except that an unidentified bid may be opened solely for purposes of identification, provided that such bid shall be resealed immediately and that no information obtained therefrom shall be disclosed) whereupon they shall be publicly opened and read aloud by the official designated to open the bids. Although it is the primary responsibility of bidders to prepare their bids correctly and completely, nevertheless, it is the duty of the Commission's representative, after the opening of bids and prior to award, to examine all bids for minor informalities or irregularities and for obvious or apparent mistakes (as referred to in paragraphs 2–44 and 2–45.1 respectively). The original bids shall not be allowed to pass out of the hands of a representative of the Commission, except when a duplicate bid cannot be made available for public inspection, and then only under the immediate supervision of a representative of the Commissioner and under conditions which preclude the possibility of a substitution, addition, deletion, or alteration in the bid.

2–42 *Recording of Bids.* The names of the bidders and the prices bid shall be entered in an abstract or record which shall be available for public inspection.

2–43 *Rejection of Bids.* Any bid which does not conform to the essential requirements of the invitation for bids shall be rejected, *provided* that any such bid may be considered when in the interest of the Government and not prejudicial to other bidders. All bids may be rejected by the Commission's representative (*a*) when rejection is in the interest of the Government or (*b*) when he finds in writing that the bids are not reasonable, or were not independently arrived at in open competition, or are collusive, or where submitted in bad faith. The originals of all rejected bids, and any written findings with respect to rejection, shall be preserved with the papers relating to the proposed work and they shall be kept available for inspection by duly authorized representatives of the General Accounting Office. Reports of possible violation of any Federal criminal statutes relating to procurement shall be made through the Office of the General Counsel.

2–44 *Minor Informalities or Irregularities in Bids.* Bidders shall be given an opportunity to correct minor informalities or irregularities in bids or in the alternative, when it is not to the disadvantage of the Government, the Commission's representative may waive the same if time does not permit correction. Illustrative examples of minor informalities or irregularities are inadvertent failure to furnish bid bond with bid and failure to affix corporate seal.

2–45 *Mistakes in Bids.*

2–45.1 *Obvious or Apparent Mistakes of a Clerical Nature.* Any clerical mistake obvious or apparent on the face of the bid may be corrected by the Commission's representative at the time of the opening of bids, if practicable, and in any event prior to award, provided there has been received from the bidder, in response to a request or verification of the bid, a statement as to any such mistake therein. An example illustrative of such mistake is an obvious error in placing a decimal point.

2–45.2 *Other Mistakes.* In the case of any suspected or alleged mistake in a bid, other than an obvious or apparent clerical mistake on the face of the bid, the procedure should be as follows:

(*a*) There should be obtained from the bidder, prior to award, either a verification of the bid or evidence in support of the mistake. If the bidder fails or refuses to furnish evidence in support of the mistake, the bid should be considered in the form submitted.

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(*b*) If evidence in support of the mistake is furnished prior to award, the case should be referred to the Director of Finance who will consult with the Office of the General Counsel on the advisability of presentation to the General Accounting Office. If award of the contract must be made prior to a decision as to the relief, if any, to be given to the bidder alleging the mistake and if there is no room for doubt as to the price or other terms intended in the bid in which a mistake occurred, then:

(i) in the case of a mistake in the lowest bid which as clearly intended would not be the lowest bid, such bid may be disregarded.

(ii) in the case of a mistake in the lowest bid which as clearly intended would still be the lowest bid, award shall be made on the basis of such low bid as originally submitted, but subject to correction if properly authorized, or

(iii) In the case of a mistake in any bid other than the lowest bid, such bid shall be considered on the basis of its price or other terms as clearly intended.

(*c*) Whenever a mistake in a bid is to be processed in accordance with the procedure set forth in subparagraph (b) above, the following papers should accompanying a copy of the bid which contains the suspected or alleged mistake:

(i) A copy of the invitation for bids;

(ii) An abstract or record of bids received;

(iii) A statement from the bidder, and any additional supporting evidence such as work sheets or other data used in preparing the bid, setting forth the complete facts on which the allegation of mistake is based and requesting such definite relief as withdrawal of the bid, change in bid price, etc.; and

(iv) A statement from the Commission's representative showing the date when notice of the alleged mistake was received, and any additional information he may have as to the alleged mistake, together with his recommendations.

(*d*) Mistakes in bids submitted on subcontracts will not be referred to the General Accounting Office but should be handled by a procedure acceptable to the managers of Operations and the prime contractor.

2–45.3 *Mistake After Award.* When an alleged mistake in a bid is disclosed after award has been made, the case shall be referred to the Office of the General Counsel.

2–46 *Award.* Award shall be made with reasonable promptness by written notice to that responsible bidder whose bid, conforming to the invitation for bids, will be most advantageous to the Government price, previous estimates, and other factors considered, provided that an award shall not be made to other than the lowest bidder as to price except with the written approval of the Manager of Operations or, if he authorizes, the written approval of the Contract Board. A responsible bidder is a bidder who possesses the financial, technical, and management abilities necessary to perform the contract. Among other factors besides price that may be considered in making an award are:

(*a*) judgment, skill and integrity of a bidder;

(*b*) reputation and experience of the bidder, and prior work of a similar nature done by him;

(*c*) changes made or requested in any of the provisions of the solicitation to the extent that such changes do not constitute grounds for rejection under the provisions of paragraph 2–43:

(*d*) restrictions or conditions imposed in the bid; and

(*e*) time of performance, provided that the forms soliciting bids made time a material factor.

2–46.1 *Statement and Certificate of Award.* In connection with every prime construction contract let by formal advertising, the Commission's representative shall prepare and execute a statement and certificate of award on U. S. Standard Form 1036, which shall be attached to the original documents and paper constituting the contract which are forwarded to the General Accounting Office. Such certificate shall either—

(*a*) state that the accepted bid was the lowest bid received in which case neither the rejected bids nor an abstract of the bids need be furnished to the General Accounting Office with the contract; or

(*b*) list all lower bids than the one accepted together with a detailed statement giving in full the reasons for the acceptance thereof.

2–47 *Information to Bidders.* To the extent reasonable and practicable and consistent with security regulations, any bidder or his authorized representative upon proper inquiry shall be given the name of the successful bidder, the bid amount and other authorized information.

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SECTION III. CONTRACTS FOR ENGINEERING AND CONSTRUCTION SERVICES WITHOUT FORMAL ADVERTISING

3–10 *Scope.* This Section sets forth (*a*) the circumstances under which engineering and construction services will be obtained without recourse to the formal advertising procedures set forth in Section II, and (*b*) the procedures and practices to be followed in entering into lump sum or unit price contracts without formal advertising. Procedures and practices with respect to cost-plus-a-fixed-fee contracts for engineering and construction services are contained in a separate Section IV because of the extent of the necessary provisions and confidential nature of a portion of the text.

PART I. PERMISSIBLE USE

3–11 *Basic Authority.* Managers of Operations are authorized, subject to the provisions of Section I, to let prime contracts without following the formal advertising procedures set forth in Section II when the procedure followed in letting the contract.

(*a*) complies with the requirements of Section 3709 of the Revised Statutes (41 U. S. C. sec. 5), or

(*b*) is authorized under the Atomic Energy Act of 1946.

3–12 *Application of Section 3709.* R. S. Sec. 3709, as amended August 2, 1946, provides as follows:

"SEC. 9 (a). Unless otherwise provided in the appropriation concerned or other law, purchases and contracts for supplies or services for the Government

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may be made or entered into only after advertising a sufficient time previously for proposals, except (1) when the amount involved in any one case does not exceed $100, (2) when the public exingencies require the immediate delivery of the articles or performance of the service, (3) when only one source of supply is available and the Government purchasing or contracting officer shall so certify, or (4) when the services are required to be performed by the contractor in person and are (A) of a technical and professional nature or (B) under Government supervision and paid for on a time basis. Except (1) as authorized by Section 29 of the Surplus Property Act of 1944 (50 U. S. C. App. 1638), (2) when otherwise authorized by law, (3) when the reasonable value involved in any one case does not exceed $100, sales and contracts of sale by the Government shall be governed by the requirements of this section for advertising.

"(b) Exemptions from Section 3709, Revised Statutes, in other laws in amounts of $100 or less are hereby repealed."

Subcontracts are not subject to the provisions of Section 3709. Subcontracts on a lump sum or unit price basis for construction services will be let, insofar as practicable, in accordance with the procedures set forth in Section II and, in any event, the letting of lump sum or unit price subcontracts will meet the requirements of Part 2 of this Section III. As stated in Part 3 of Section I, Section 3709 generally is applicable to the letting of prime contracts. This statute will be complied with if—

(*a*) the contract is let in accordance with the formal advertising procedures of Section II; or

(*b*) circumstances exist which make applicable one of the four exceptions enumerated in the statute and reviewed in the following paragraphs 3–12.1 through 3–12.4. Paragraphs 3–13.— pertaining to the application of the Atomic Energy Act to contracts, states certain circumstances under which contracts may be let without following the formal advertising procedures. The letting of contracts under these circumstances also may be justified in some instances under Section 3709. Whether Section 3709 or the Atomic Energy Act is used in the justification on Form 1036 will be decided by the Office of the General Counsel.

3–12.1 *Amount Less Than $100.* Construction contracts in an amount less than $100 are not subject to the advertising requirements of the statute. Letting of more than one contract as a subterfuge to bring the same within this exception is not to be permitted.

3–12.2 *Public Exigency.* Construction contracts may be let without advertising when the public exigencies require their immediate performance. In order for this exception to be applicable, the need must be compelling and of unusual urgency, as when the Government would be seriously injured, financially or otherwise, if the services were not performed by a certain date, and when they could not be performed by that date if they were obtained by means of formal advertising. This exception might be applicable where a facility must be altered or repaired immediately in order not to interfere with essential production and the need for the work could not have been reasonably foreseen.

3–12.3 *Sole Source of Supply.* Construction contracts may be let without advertising when only one source of supply for such services is available and the Commission's representative shall so certify. A statement of facts upon which the opinion as to the existence of a sole source of supply is based must be furnished by the Commission's representative. This exception might be applicable where a proprietary article which must be purchased from the manufacturer or sole distributor is the only one suitable, and it is customary or necessary to purchase the article on an installed basis.

3–12.4 *Personal Services.* The exception as to services required to be performed by the contractor in person is not applicable to contracts with firms of architect-engineers or to construction services which involve performance of services by more than one individual.

3–12.5 *General Limitation.* The interpretation and application of these exceptions have been the subject of numerous decisions by the Comptroller General. Where there is any reasonable doubt of the application of these exceptions to the circumstances of a case, advice should be sought from the Office of the General Counsel.

3–13 *Application of Exemptions Contained in the Atomic Energy Act.* In general, the other exceptions to the advertising requirements of Section 3709 are found in the provisions of the Atomic Energy Act of 1946. The scope of the exemptions under the Act depends in considerable part upon the factual justifi-

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cation for the proposed manner of letting the contract. The manner in which it is proposed to solicit proposals from available prospective contractors, as well as the nature and urgency of the work, are important elements in this factual justification. The circumstances under which exemptions under the Act may be available are outlined in the following paragraphs. The advice of the Office of the General Counsel should be obtained where there is any doubt as to their application to any particular case.

3–13.1 *Practicality.* Formal advertising procedures may be dispensed with when it is not reasonably practicable to secure adequate competition through use of that procedure. Circumstances in which this condition is usually present are:

(*a*) When the information necessary to be furnished bidders includes restricted data, or when performance of the work will involve access to restricted data, and it will not be practicable to obtain necessary security clearance of personnel of the successful bidder within a reasonable time after submission of the bid. Where this exception is applicable contracts will be let either on a lump sum basis in accordance with the procedure provided in Part 2 of this Section, or if a lump sum basis is not practicable, on a cost-plus-a-fixed-fee basis in accordance with the procedure provided in Section IV.

(*b*) When the contract is for furnishing architect-engineer services. Contracts for these services will be let in accordance with the procedure prescribed in Part 3 of this Section or if a lump-sum basis is not practicable, that prescribed in Section IV.

(*c*) When it is impossible to draft, for a solicitation of bids, adequate plans and specifications or any other adequately detailed description of the required services.

(*d*) When, in order to meet essential program requirements by a certain date, construction work must be commenced prior to development of adequate information upon which to solicit bids by formal advertising.

3–14 *Statement and Certificate of Award.* In connection with every prime contract let pursuant to the provisions of this Part I of Section III, including contracts made pursuant to Parts 2 and 3 of Section III and Section IV, the Commission's representative shall prepare and execute a statement and certificate of award on Standard Form 1036, which shall be attached to the original documents and papers constituting the contract which are to be forwarded to the General Accounting Office. The advice of the Office of the General Counsel should be obtained in preparing Form 1036.

PART 2. AWARD OF LUMP-SUM OR UNIT-PRICE CONSTRUCTION CONTRACTS WITHOUT FORMAL ADVERTISING

3–20 *Scope.* This Part 2 sets forth the prescribed procedures for letting lump-sum or unit-price construction contracts by invited bids and by negotiation. The procedure in awarding lump-sum architect-engineer contracts is set forth in Part 3 of this Section III, and the procedure for letting cost-plus-a-fixed-fee engineering and construction contracts is set forth in Section IV.

3–21 *Use of Invited Bids.* The invited bids procedure will be used when: (a) formal advertising is not feasible for one of the reasons enumerated in Part I of this Section, and (b) adequate information is available for the solicitation of bids.

3–22 *Procedure.* In general, the procedures followed in letting a contract by invited bids is similar to the formal advertising procedure. The objective is to obtain as full and free competition as is feasible under the circumstances. The procedure will differ to the extent indicated in the following paragraphs.

3–23.1 *Method of Soliciting Bids.* No notice need be posted in a public place nor need notice be given in any trade journals or newspapers. Bids, however, should be solicited from as many qualified contractors as it is feasible to do so. Construction work must not continue to be let, time after time, to a small group of contractors for the sole reason that they have received previous security clearance. If restricted data is involved, consideration should be given to increasing the number of qualified contractors by having security clearance obtained for the personnel concerned in preparing the bid.

3–22.2. *Submission of Bids.* If in exceptional cases time does not permit, formal bids need not be obtained, but any oral bids must be confirmed by written bids prior to award. Prior approval of the Commission's representative must be obtained to solicitation of oral bids.

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3–22.3. *Opening of Bids and Award.* No formal opening of bids is required, but to encourage full, free and fair competition the provisions of Part 3 and 4 of Section II should be followed closely. While award of the contract to the lowest bidder as to price is not required where not in the best interests of the Government, award to other than the low bidder should seldom be necessary since the bidders have been selected for financial and technical qualifications. The factors, other than price, that may be considered in making an award are set forth in paragraph 2–46.

3–23 *Lump-Sum or Unit-Price Construction Contract by Negotiation.* Construction contracts may be let on a lump-sum or unit-price basis without formal advertising or invited bids, referred to as negotiation in this paragraph, when

(*a*) only one bid has been received after formal advertising or invited bids, provided that award may be made on the one bid as submitted, and that in no case may the price paid after negotiation exceed the amount bid.

(*b*) there is only one source for the furnishing of the construction services, or

(*c*) no responsive bid has been received from a responsible bidder after formal advertising or invited bids,

and the Commission's representative is able to satisfy himself that a lump-sum or unit-price contract at the price negotiated is in the interests of the Government. If a price which appears to be fair and reasonable cannot be negotiated, consideration should be given to letting the contract on a cost-plus-a-fixed-fee basis. Determination of whether the price is fair and reasonable should be supported by a written memorandum setting forth the Commission's estimate, market information and other available sources of information.

PART 3. LUMP-SUM CONTRACTS FOR ARCHITECT-ENGINEER SERVICES

3–30 *General.* The procedures in selection and the method of negotiating lump-sum architect-engineer contracts are similar to, and in many instances, identical with, those used for cost-plus-a-fixed-fee architect-engineer contracts. Accordingly, to avoid repetition cross reference will be made in this Part to the appropriate paragraphs of Section IV.

3–31 *Definition.* A large-sum contract for architect-engineer services provides for the payment of a fixed amount or lump sum to the contractor for the furnishing of architect-engineer services. It may, and as provided in this Part, does, include reimbursement for specified items of cost.

3–32 *Prescribed Use.* A lump-sum contract for architect-engineer services should be used whenever it is practicable to compile in advance of the preparation of plans and specifications adequate information specifically describing the character and extent of services required. The development of this information will not be practicable where (a) the time limits for commencement or completion of the work do not permit advance development of the information, or (b) the nature of the work is such that substantial technical development is required before these data will become available.

3–33 *Selection.* The procedure used in the selection of Architect-Engineers to furnish services on a lump-sum basis is the same as that set forth in paragraph 4–23 of Section IV. The responsibilities of the Contract Board with respect to the selection of Architect-Engineers for both prime contracts and subcontracts under prime cost-type operating contracts is contained in the transmittal GM Bulletin (Appendix I).

3–34 *Required Information.* Before negotiating a lump-sum architect-engineer contract it will be necessary to have the same information set forth in paragraph 4–33 of Section IV, as well as a description of the work as set forth in paragraph 4–36. The information as to the work should be in more detail and on a firmer basis, particularly as to estimated cost, than for a cost-plus-a-fixed-fee contract.

3–35 *Determination of Lump Sum.* The basic policy with respect to fees set forth in paragraph 4–41 is also applicable to the determination of the lump sum to be paid on architect-engineer contracts. A schedule for lump-sum architect-engineer contracts is included in Exhibit IIA. Amounts in excess of the maximum derived from this schedule as adjusted by the provisions of this Part 3 will not be negotiated with respect to original contracts or change orders or supplemental agreements covering additional or less work than was originally contemplated; provided, that if, because of unusual circumstances, a Manager of Operations believes an amount higher than the maximum should be negotiated for particular services, the Manager may request approval for such higher amount from the appropriate Division Director. In this event the request must set forth in

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writing the recommended amount and the circumstances and reasons justifying payment of a larger amount.

3–35.1 *Factors Governing Amount.* The schedule in Exhibit II for lump-sum architect-engineer contracts shows the maximum amount (not including the reimbursements referred to hereinafter) to be paid to Architect-Engineers who render all of the services enumerated in paragraph 4–33 for the most complex work to be performed within a normal period. The adjustments are as follows:

(*a*) For complexity, the same classifications and deductions for the respective classes as those set forth in paragraph 4–42.2 are made from the lump-sum amount derived from the schedule.

(*b*) For less than full services, percentage deductions within the same ranges as those set forth in paragraph 4–42.3 are made from the lump-sum amount derived from the schedule.

(*c*) For lay-out or design of manufacturing and operating equipment, its estimated cost or a proportion thereof may be included in determining the lump-sum amount under the circumstances described in paragraph 4–42.5.

(d) For period of service, if an exceptional case arises in which an adjustment of the lump sum appears necessary because of a considerable variance in a normal period of service, the Manager of Operations should forward his recommendations as to the adjustment to be made to the appropriate Division Director.

3–36 *Reimbursable Costs.* The lump-sum amount derived from the schedule, as adjusted by the factors described above, is to be complete compensation to the Architect-Engineer for all the required services except that the Architect-Engineer may be reimbursed for the direct costs of the following items:

(*a*) Necessary topographical and other field surveys, test borings, and other subsurface investigations which he or his subcontractor may be required to make.

(*b*) Making *major* changes and deviations from the *approved* preliminary work that may involve either restudy or redesign.[2]

(*c*) Salaries, including pay-roll costs approved by the Commission's representative, of field engineers and inspectors employed by the Architect-Engineer at the site for the inspection of the construction work and their "on site" transportation. (Compensation for a responsible resident representative together with the required office force, other than the field engineers and inspectors, is included in the lump sum.) "On site" transportation does not include transportation to or from living quarters.

(*d*) Employment of expert technical assistance when approved by the Commission's representative (this may include services of material testing laboratories).

(*e*) Furnishing more than 20 copies of drawings and documents.

(*f*) Traveling expenses for extraordinary services, such as expediting, or inspecting materials and equipment at vendors' plants.

3–36.1 *Permissible Deviation.* If considered to be in the best interests of the Government, the lump sum to be paid the Architect-Engineer may be increased by an amount sufficient to include the estimated cost of any one or of all the items described in subparagraphs (a) to (f). The calculation of the lump sum, to be shown as a part of Exhibit I, shall clearly show the amount included for each of these items.

3–37 *Negotiation Procedure.* The procedure in negotiating lump-sum architect-engineer contracts is similar to that set forth in Part 7 of Section IV for negotiating cost-plus-a-fixed-fee contracts. GM Bulletin No. 44 relative to approval of wage, salaries, benefit plans, etc., on cost-plus-a-fixed-fee contracts is inapplicable except to approval of salaries of field engineers and inspectors or other reimbursable personnel.

3–38 *Letter Agreements.* Authorizations to proceed under a letter agreement, as provided in paragraph 4–72, should be avoided whenever possible. In any event, the letter agreement should contain the essential items agreed upon during the negotiations.

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[2] An addition to this manual will be issued on the subject of change orders and supplements to contracts.

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SECTION IV. COST-PLUS-A-FIXED-FEE CONTRACTS

4–10 *Scope.* This Section sets forth (a) the circumstances with respect to which cost-plus-a-fixed-fee contracts will be used, (b) selection of Architect-Engineers and cost-plus-a-fixed-fee Construction Contractors, (c) required information to negotiate contracts, (d) on cost-plus-a-fixed-fee contracts, (e) salaries and wages under cost-plus-a-fixed-fee contracts, (f) allowance for work in general offices, and (g) procedure in negotiating contracts.

PART 1. USE OF COST-PLUS-A-FIXED-FEE CONTRACTS

4–11 *Definition.* A cost-plus-a-fixed-fee contract provides for the payment of all the contractor's allowable costs as defined in the contract; it establishes an estimate of the total cost; it provides for the payment of a fixed fee which does not vary with the actual cost, but is adjusted only in the event a material change in scope or character of the work is ordered by the owner.

4–12 *Prescribed Use.*

4–12.1 *Contracts for Architect-Engineer Services.* In general, cost-plus-a-fixed-fee contracts and subcontracts for architect-engineer services may be utilized only when it is impracticable to compile in advance of the preparation of plans and specifications adequate information specifically describing the character and extent of services required. The development of this information will not be practical where (a) the time limits for commencement or completion of the work do not permit advance development of the information, or (b) the nature of the work is such that substantial technical development is required by the Architect-Engineer before these data will become available.

4–12.2 *Contracts for Construction Services.* Prime cost-plus-a-fixed-fee construction contracts will be entered into only if one of the exceptions set forth in Part 1, Section III is applicable, and it is not practicable to let the contract by invited bids as set forth in Part 2 of Section III. Cost-plus-a-fixed-fee subcontracts will be entered into only if it is not practicable to use a lump sum or unit price contract.

4–12.3 *Engineer-Constructor Contracts.* Cost-plus-a-fixed-fee contracts and subcontracts for both architect-engineer and construction services (called Engineer-Constructor contracts) should not be made except (a) for the reasons set forth in paragraph 4–12.1 for the engineering services, (b) for the reasons set forth in paragraph 4–12.2 for construction services, and (c) where it is manifestly to the advantage of the Commission to combine engineering and construction services in one contract.

4–12.4 *Subcontracts.* The procedures and practices prescribed in this Section IV are applicable to cost-plus-a-fixed-fee subcontracts for architect-engineer or construction services except that Managers of Operations will determine the most appropriate manner for the Contract Board to operate as provided in the transmittal Bulletin.

PART 2. SELECTION OF ARCHITECT-ENGINEERS AND CONSTRUCTION CONTRACTORS

4–21 *General.* The most important consideration in obtaining economical and efficient performance of work under a cost-plus-a-fixed-fee contract for engineering or construction services is the selection of the firm best qualified to perform the work, considering all applicable factors. The amount of the fee, which is relatively small in proportion to the total construction cost, the adequacy of contractual provisions, or the effectiveness of contract administration, cannot offset the disadvantage in employing an unqualified firm.

4–22 *Authority.* The Manager of Operations is responsible for the selection of Architect-Engineers, Construction Contractors, and Engineer-Constructors en-

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gaged upon a cost-plus-a-fixed-fee basis. Under the G Bulletin transmitting this manual, one of the responsibilities of the Contract Board is to recommend to the Manager the Architect-Engineer or Construction Contractor to be awarded a prime contract.

4–23 *Procedure in Selection.* The procedure in selection of Architect-Engineers, Engineer Constructors, and cost-plus-a-fixed-fee Construction Contractors for both prime contracts and subcontracts is as follows:

4–23.1 *Eligible Firms.* The objective should be to give consideration to as many firms within practical limits as may offer possible qualifications for performance of the work. This objective is attained from:

(*a*) An analysis of the requirements of the work considering such factors as—

(i) the nature of the work;

(ii) the magnitude of the job;

(iii) the time of performance; and

(iv) the conditions under which the work is to be performed, such as location of the work, local labor conditions, and relations with other contracts.

(*b*) Available information as to firms possibly meeting these requirements. This information may be derived from:

(i) the general experience of those making the selection;

(ii) data furnished to the Office of Operations by Architect-Engineers and Construction Contractors interested in performing Commission work;

(iii) previous performance for the Commission;

(iv) information furnished by the Construction-Engineering Branch of the Production Division if requested by the Office of Operations; and

(v) other various sources, such as trade journals, professional societies, other Architect-Engineers and contractors, etc.

4–23.2 *Final Selection.* To screen the firms which are to be further considered and, finally, to determine the firm best qualified to perform the work, additional data are developed on the factors set forth below through further information supplied by the firms either by letter or through personal interviews, inspection of the facilities of the firm, and any other sources which will supply pertinent and reliable information. The factors are as follows:

(*a*) Reputation and standing of the firm and its principal members in performance of the contemplated type of work.

(*b*) Past record in performing work for the Commission and, if available, for other Government agencies.

(*c*) Adequacy of any necessary home office facilities.

(*d*) The volume of work of the firm in previous years, and the extent to which the firm is currently engaged in other work.

(*e*) Ability to assign an adequate number of qualified key personnel, including a resident representative having considerable experience in responsible positions on work of a similar nature.

(*f*) Additional management qualifications:

(i) its record in labor relations, particularly, effectiveness in preventing work stoppages, and the possible effect of labor relations policies and practices on other contractors performing work at the site;

(ii) its safety record;

(iii) the adequacy of its accounting system.

(*g*) Ability of the firm to perform a major portion of the work with its own forces.

(*h*) Ability of the firm to furnish or to obtain adequate construction plant and to procure required materials and equipment.

(*i*) Financial resources.

(*j*) Geographic location of the home office and familiarity with the locality in which the project is located.

4–23.3 *Submission to Division Director.* For engineering or construction contracts, including both prime contracts and subcontracts, in which the estimated cost of the construction work is in excess of $2,000,000, the Manager of Operations should advise the appropriate Division Director of the firms being considered when the number has been reduced to three or four.

4–24 *Records.* The Contract Board should maintain the following records:

(*a*) As to eligibility, to the extent reasonably practicable, a current record of engineering and construction firms which might be available for work at the Office of Operations, and their qualifications.

(*b*) As to selection, a record which will:

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(*i*) show the procedure which was followed in the selection of Architect-Engineers and cost-plus-a-fixed-fee Construction Contractors;

(*ii*) show the reasons for the selection of the firm, including evaluation of the factors set forth in paragraph 4–23;

(*iii*) show the other firms considered and the reasons they were not selected.

(*c*) As to performance, a record which will show the effectiveness with which the firm performed cost-plus-a-fixed-fee work, in order that its qualifications may be evaluated in the light of the factors set forth in paragraph 4–23 for any further work at the Office of Operations or at other Offices of Operations. A copy of this record, which should be marked "Confidential," shall be forwarded to the Director of the Division of Production, Attention: Construction-Engineering Branch.

PART 3. ENGINEERING AND CONSTRUCTION INFORMATION REQUIRED IN NEGOTIATING COST-PLUS-A-FIXED-FEE CONTRACTS

4–31 *General.* Before attempting to negotiate a cost-plus-a-fixed fee contract for engineering or construction services, the following information set forth in this Part 3 should be developed in written form and included as a part of Exhibit I.

4–32 *Type of Service.* Statement regarding type of service required, that is, Architect-Engineer, Construction Contractor, or Engineer-Constructor.

4–33 *Extent of Services of Architect-Engineer.*

(*a*) Statement showing the extent to which the services of the Architect-Engineer include those set forth in the following three titles:

Title I

Provide the necessary topographical and other field surveys, test borings, and other subsurface investigations; prepare preliminary studies, sketches, and lay-out plans and reports, including estimates of cost of the proposed project and of all structures, utilities, and appurtenances thereto.

Title II

Complete design of the work, including preparation of all required preliminary and final working drawings, specifications, estimates, and contract documents; assist in securing, analyzing, and evaluating bids or proposals for construction, check shop drawings, and consult with the owner on all questions arising in connection with the services performed by the Architect-Engineer.

Title III

Complete architect-engineer supervision and inspection of construction under the direction of a responsible representative. Furnishing of record drawings to show construction as actually accomplished.

(*b*) A statement showing whether the services of the Architect-Engineer will include the furnishing of a nonreimbursable representative who shall be in responsible charge of the work.

(*c*) Statement showing whether the services of the Architect-Engineer include process design. Process design normally requires the preparation of flow diagrams showing each operating step to perform the process, the nature, capacity and design characteristics of production equipment, and the general design of connecting flow lines to handle the calculated rates of product and byproduct flow. Under ordinary circumstances the Architect-Engineer is not required to furnish process design.

4–34 *Extent of Services of Construction Contractor.* A statement showing whether the services of the Construction Contractor include:

(*a*) Construction with the contractor's own forces of all work except specialty items normally subcontracted.

(*b*) Procurement of all required materials.

(*c*) Procurement of all manufacturing equipment.

(*d*) Installation of manufacturing equipment.

(*e*) Complete management of construction under the direction of a nonreimbursable resident representative who shall be in responsible charge of the work.

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4–35 *Extent of Services of Engineer-Constructor.* A statement showing whether the services of the Engineer-Constructor include all of the services set forth in paragraphs 4–33 and 4–34.

4–36 *Description of the Work.* Statement containing a sufficiently detailed description of the work to permit the degree of complexity of its principal components to be evaluated adequately. The estimated cost of the component items should be furnished insofar as applicable and this should include the description and estimated cost of:

(*a*) Buildings and other structures for which complete designs and specifications are to be prepared by Architect-Engineer, including number and unit cost of each type, with as much information as is available (within security requirements) as to the functional requirements for such structures.

(*b*) Utilities, giving classifications and unit prices in as much detail as practicable.

(*c*) Manufacturing equipment to be—

(i) procured by operating contractor or furnished by the Commission;

(ii) to be procured by Construction Contractor or Engineer-Constructor;

(iii) designed by Architect-Engineer; and

(iv) installed by the Construction Contractor or by the Engineer-Constructor.

4–37 *Estimated Cost and Time for Completion.* Statement disclosing (a) total estimated cost of the work exclusive of Construction Contractor's fee, showing separately any amount included for contingencies, and (b) estimated time of completion of design or construction work.

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